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HENRY WINTERBOTTOM.

COMMENTARIES
ON SOME OF THE
MOST IMPORTANT
DISEASES OF CHILDREN.

BY
JOHN CLARKE, Esq. M.D.
&c. &c. &c.

PART THE FIRST.

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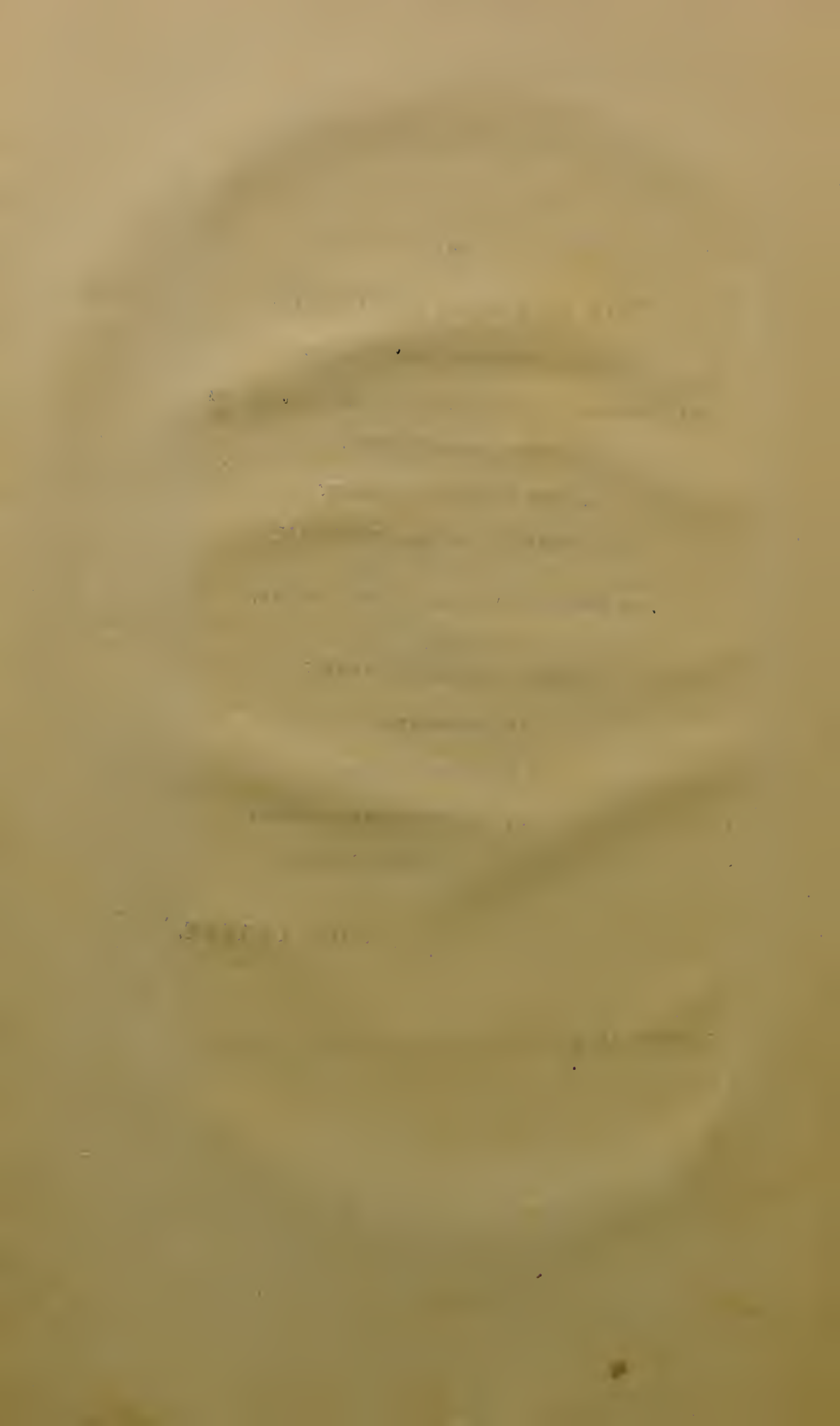
TO
THE MEDICAL STUDENTS
WHO IN THE LAST THIRTY YEARS
HAVE ATTENDED THE LECTURES ON THE DISEASES OF
WOMEN AND CHILDREN,
IN THE SCHOOL FOUNDED BY
DR. OSBORN AND DR. DENMAN,
AND SINCE CONTINUED BY THE WRITER,

THESE COMMENTARIES

ARE DEDICATED,
AS A TOKEN OF REGARD,
BY THEIR FAITHFUL FRIEND,
AND WELL-WISHER,

JOHN CLARKE.

LONDON, 1815.



ADVERTISEMENT.

IT is not designed in the following Commentaries to give a systematic account of all the diseases to which children are liable. It is only proposed to lay before the readers of them the result of the observations and experience of the writer on some of the most important disorders to which the early periods of human life are liable.

He hopes that they may serve as a foundation for a more perfect knowledge of them hereafter, and that they may prove of some present use, at least to the younger part of the medical profession. He is

aware that some apology may be necessary for the numerous repetitions which will be obvious to the reader of these Commentaries, and for the desultory manner in which they are written ; but on subjects so connected as those, which form the first part of these Commentaries, it was found impossible to avoid repetitions, without consulting brevity at the expence of perspicuity ; and to adopt a different style, without making a regular Treatise, which was not his original design.

In describing the treatment of the diseases, which form the subject of the first part of these Commentaries, the precise doses of the medicines recommended are not mentioned, because they are addressed to professional men : but in a future part it is intended to treat of the medicines proper for children more at large, and to lay before the reader some account of

those medicines, which in the course of a long experience, have been found to be most useful in the various disorders of children.

In conclusion it is right to add, that the observations contained in these papers, have been principally made in London, and its immediate vicinity. Diseases are liable to be greatly modified by diversities of local situations and circumstances. Children therefore living in pure air, in villages and in healthy situations in the country, will be subject to fewer diseases than those who are born in a great metropolis, or in large manufacturing towns. In the latter, as soon as they have passed through the state of infancy, they are often crowded together in heated factories, rendered still more unwholesome, in many cases, by the effluvia of deleterious substances: in such situations they

spend the greater part of the day, deprived in great measure of exercise in the open air, and frequently neither well nursed nor well fed. With all these disadvantages, (from which the children of poor cottagers are in a great measure exempt), they necessarily become weak and sickly, and the mortality of children will of course be much greater than where they live more agreeably to the rules of nature.

LONDON, MARCH, 1815.

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COMMENTARIES
ON SOME OF THE MOST IMPORTANT
DISEASES OF CHILDREN.

GENERAL OBSERVATIONS ON THE DISEASES AND
MORTALITY OF CHILDREN, AND ON THE STATE
OF MEDICAL KNOWLEDGE ON THESE POINTS.

THE bill of mortality annually published in London, however it may be in other respects imperfect, must be considered to be tolerably correct as to the number and the ages of the persons buried in the district which it comprehends, including all the parishes in the cities of London and Westminster, and many of those situated in the suburbs.

But this register is very imperfect, in relation to the diseases by which the deaths have been occasioned, so that it conveys

very little information in a medical point of view, except as to some disorders which hardly admit of being mistaken; as, for example, the small-pox, measles, whooping-cough, and a few others.

This imperfection might be corrected, at least in some degree, by legislative enactments, enforcing the necessity of a certificate from the medical attendant (where any has been employed) of the cause of the death, without which no funeral should be allowed to take place. This certificate should be delivered to the parish clerk previously to the funeral, under a penalty for omitting to do it, recoverable by information on oath before a magistrate acting for the county or town where such funeral takes place.

Another imperfection in the bill of mortality is, that it affords no criterion of the number of births, so that it is impossible to make an accurate calculation of the proportion of births to burials.

The christenings alone are recorded, and there is no register of births at all. Of

course the births of all Christian Dissenters from the Established Church, of all Catholics, of Jews, and of all those who are of no religion, are not comprehended in the parochial register: yet such various descriptions of persons constitute a very large proportion of the population of the metropolis and its environs.

This defect in the annual bill might be corrected likewise by a regulation, compelling every person to give notice of the birth of a child to some municipal officer, under a penalty for neglecting to do so, recoverable by information on oath, as in the other case.

As, for the reasons already assigned, no accurate calculation can be made of the comparative number of births to burials from the bills of mortality, so any conclusion upon the subject must be drawn from the burials only, assuming as a datum that the births and burials are equal. Taking the whole of human life, this might be liable to some objection in a large metropolis; but as it applies to children under

ten years of age, the force of it is much lessened, since the influx of strangers is chiefly after that time of life.

The amount of the deaths, as stated in the bills of mortality for forty years, from the year 1760 to the year 1799 inclusive, is inserted below.

The first column marks the year.

The second column marks the total number of burials.

The third column marks the number of burials under two years of age.

The fourth column marks the burials between the age of two and ten years. *

| | Total. | Under 2.—2 & 10. | |
|-------|--------|------------------|------|
| 1760. | 19830 | 6838 | 2575 |
| 1761. | 21063 | 7699 | 2233 |
| 1762. | 26326 | 8371 | 3223 |
| 1763. | 26143 | 8200 | 4309 |

NOTE.

* The table is taken from the Annual Register.

| | Total. | Under 2.—2 & 10. | |
|-------|--------|------------------|------|
| 1764. | 23202 | 7673 | 2965 |
| 1765. | 23250 | 8073 | 2702 |
| 1766. | 23911 | 8035 | 3018 |
| 1767. | 22612 | 7668 | 3586 |
| 1768. | 23639 | 8229 | 3404 |
| 1769. | 21847 | 8016 | 2912 |
| 1770. | 22434 | 7994 | 3413 |
| 1771. | 21780 | 7617 | 2648 |
| 1772. | 26053 | 9112 | 3900 |
| 1773. | 21656 | 6850 | 2244 |
| 1774. | 20884 | 7742 | 2945 |
| 1775. | 20514 | 7496 | 2802 |
| 1776. | 19048 | 6857 | 2262 |
| 1777. | 23334 | 8889 | 3591 |
| 1778. | 20399 | 7355 | 2783 |
| 1779. | 20420 | 7261 | 2803 |
| 1780. | 20517 | 6810 | 2211 |
| 1781. | 20709 | 7083 | 3281 |
| 1782. | 17918 | 5320 | 1757 |
| 1783. | 19029 | 6632 | 2546 |
| 1784. | 17828 | 5729 | 2394 |
| 1785. | 18919 | 6177 | 2342 |
| 1786. | 20454 | 6693 | 2945 |
| 1787. | 19349 | 6119 | 2762 |
| 1788. | 19697 | 6138 | 2389 |
| 1789. | 20749 | 6936 | 3037 |
| 1790. | 18038 | 5877 | 2696 |
| 1791. | 18760 | 6556 | 2487 |
| 1792. | 20213 | 6542 | 2914 |
| 1793. | 21749 | 6987 | 3469 |
| 1794. | 19241 | 6546 | 2892 |

| | Total. | Under 2.—2 & 10. | |
|-------|----------------|------------------|----------------|
| 1795. | 21179 | 6466 | 2760 |
| 1796. | 19288 | 6772 | 3740 |
| 1797. | 17014 | 5111 | 2028 |
| 1798. | 18155 | 5728 | 1991 |
| 1799. | 18134 | 5211 | 2434 |
| | <u>836,285</u> | <u>281,408</u> | <u>113,393</u> |

It appears from this table of the burials, as published in the bills of mortality annually, that in forty years the whole number of burials amounts to 836,285.

It appears that of this number 281,408 died before they had attained the age of two years; and that of the surviving 554,877 (after deducting those who died under two years of age) 113,393 died before they reached the age of ten years.

If the assumption above stated be true, that in early life the births and burials are equal, then it follows, that of all the children born within the district comprehended in the bills of mortality, nearly a fourth die under two years of age, and of the sur-

vivors, about a fifth in the succeeding eight years, that is, under ten years of age.

In some years, as in 1760, 1765, 1766, 1767, 1768, 1769, and many others which may be easily referred to, more than a third of all the burials are of children under two years of age.

The result of this examination of the yearly bills of mortality in London and the suburbs, is very important, not only in a medical, but in a political view. It must on all hands be admitted that, *cæteris paribus*, the strength of every nation will be proportionate to its population, and that every thing which has a tendency to diminish the population, must affect its strength and prosperity. It has been maintained, and perhaps with great truth, that the population of a country will be proportionate to the means of subsisting the inhabitants*:

NOTE.

* It is very difficult to set bounds to the power of a country to subsist its inhabitants. In Great Britain, and still more in Ireland, there are large districts of

but the want of subsistence can hardly be supposed in this country to be a sufficient explanation of the extensive mortality among children under ten, but especially under two years of age. It is a subject of infinite importance to the community, and no measure should be neglected which might have the effect of checking this great mortality in the early periods of life.

Important, however, as the subject is, it has been nevertheless overlooked; at any rate, no measures have been taken to remedy the evil complained of, although the long continuance of a war which has desolated Europe, requires every attention to the means by which the drains made on the population of this empire, by recruiting the navy and army, may be compensated.

waste land unemployed at present, so that they could maintain a greater number than they do. In Ireland, immense tracts of bog are capable of being reclaimed, if encouragement were given to the inhabitants to exert themselves. Moreover, the commercial intercourse of these dominions with other nations would produce the importation, if necessary, of very large quantities of grain in the way of exchange, if the population should increase much beyond its present extent.

In investigating the reasons of this great mortality among children, it is quite impossible to conceive that it may not be traced to some mismanagement of them, since it is utterly inconsistent with the uniform goodness of the Creator, to suppose that so many children are brought into the world only that they may die at an early period of their existence.

The severity of the winters, the general variableness of the climate, and the improvident exposure of young children to cold, without sufficient attention to clothing, lay the foundation of many diseases, which prove fatal to them, (in some instances very rapidly), as peripneumony and inflammation of the mucous membrane of the trachea, &c. The last in its most violent state has acquired the name of croup, a disease which sometimes destroys in a few hours.

It is a subject of very common observation, that children, who have been inured to cold, and brought up hardily, (as it is called), are the strongest in adult age, and this has induced many parents to expose

their children thinly clad to all the severities of weather. It is in part true, since children, who survive the seasoning, are generally strongest. The original strength of their constitution probably enabled them to bear it in the first instance ; and, if they are able to encounter it in early life, they will lose in some measure the susceptibility of being readily affected by changes of temperature afterwards.

But, all medical men, who have had opportunities of attending much to the diseases of children, must have observed that those families in which children are least exposed to cold in winter are generally most healthy, whilst those, who act on the erroneous principle of hardening them, by the exposure of their tender bodies to severe weather, are scarcely ever free from disease of some kind.

Disorders, which might otherwise have remained dormant, are thus brought into activity by this mode of treating children ; and many fall sacrifices to pulmonary consumptions and scrophulous complaints in

more advanced life from this error alone, of being exposed in childhood to cold with the intention of being made strong and hardy.

The present fashion of clothing young children, founded upon the same erroneous notion of hardening them, is also very injurious to their health. Their arms and chests are entirely uncovered. They generally wear no stockings at all ; and, from the stomach downwards they are almost in a state of nakedness, even in winter:

To rebut the force of these observations this question has been often asked, What becomes of the children of the poor ? This mode of getting rid of a difficulty by putting a question is very easy, and very imposing upon ignorant persons, who have bestowed little attention on this subject. But, if they will inquire, they will find that comparatively few of the children of the poor are reared ; and, that a large proportion of the deaths in the bills of mortality are among the offspring of this extensive class of the community, especially in large cities and

towns. Their death, however, makes no noise, and therefore little impression, on account of the obscurity of their station; whilst an unfavourable case of the cow-pox, especially if it occurs in a family of distinction, rings through the whole island with every possible aggravation and misrepresentation, which artifice or folly can suggest to deceive the timid, the ignorant, and the credulous.

In large cities, and manufacturing towns, bad air, crowded apartments, want of cleanliness, and inattention, become additional causes of disease, and ultimately of death.

Besides the immediate bad effects of these circumstances in such situations, the influence of them in the propagation of diseases of an infectious character must be evident to every one who bestows even the slightest attention upon the subject.

There are some diseases, of which (with a very few exceptions) the human constitution is susceptible once only in the whole of life; such are the hooping-cough, the

measles, small-pox, and perhaps the scarlet fever, attended with the ulcerous sore throat.

Children in early life will be very liable to these diseases, especially in large towns, which are seldom entirely free from them, and where therefore, in some seasons, and in certain unknown constitutions of the air, or from different degrees of susceptibility in the human constitution at different times, they occasionally become endemic, and prove mortal to a very great extent.

It is in the power of the legislature to establish such a system of police upon the subject of contagious disorders as to lessen considerably the extension of some of them, by making provision for separating the sick from the healthy, at least, in most cases of contagious disorders. This might be effected by establishing public hospitals at the national expence, for admitting the poor, without interest or recommendation, when labouring under diseases capable of being communicated by contamination, and allot-

ing separate establishments for different diseases.

With respect to the small-pox, this separation of the healthy from the diseased might be made compulsory upon all ranks of society. In the natural, or casual small-pox, all infected persons should be compelled to be separated from the healthy. If poor, they would be glad to take advantage of a public establishment, by which their expences would be diminished, and where food and medical attendance could be had gratuitously. Those families, whose superior station in society would not make it necessary or desirable to take advantage of such institutions, should be compelled to avoid all general communication with the healthy part of the community, to inscribe on their houses in large legible characters that the small-pox is there, and to perform a reasonable quarantine after the termination of the disease.

It may be thought that this would be a great encroachment upon the liberty of the

subject ; but so is every restrictive law. A man, in a state of society, must be content to surrender some proportion of his own liberty for the advantage of the community in which he lives ; and he is only to enjoy so much as is compatible with the good of his neighbour.

If quarantine be judged necessary to prevent the plague, a disease of rare occurrence in this country, or the spreading of a malignant fever in a garrison, as at Gibraltar or Malta, and, if it be believed, that the observance of it has kept these dominions free from the ravages of the plague for more than a century, how much more necessary must it not be in regard to the small-pox, the victims to which have been incalculably more numerous than to the plague ?

Restrictions under the heaviest penalties ought to be enforced, too, upon the licentiousness of inoculation for the small-pox, by which the existence of the disease has been insured to such a degree, that it is scarcely to be doubted that more persons have died of the small-pox since the intro-

duction of inoculation than before it was known in England, because the infection has been perpetually kept up, and disseminated by this means at all times ; whereas, before inoculation was known, it was only occasionally endemic.

The preventive powers of the inoculated cow-pox have been now established irrefragably, (in spite of all prejudice and opposition,) by the acute mind of Dr. Jenner, in a series of decisive experiments.

No tribute of praise from the writer of these papers can exalt the highly disinterested merits of this benefactor to mankind. Attacked on all sides by envy, malignity, jealousy, prejudice, and ignorance, his modest and unassuming disposition rested the value of his discovery on its own intrinsic merits. In every country, except his own, he early saw the discovery duly appreciated, and here only opposed. But truth must ultimately prevail. It has now received the concurrent approbation of all those members of the medical profession who are most capable of estimating the advantages of it, and is op-

posed principally by a few, who, having contracted and expressed an early prejudice against it, have not had courage or candour enough to confess and retract their error.

It is to be feared that there are also some who have been actuated by more sordid motives to maintain and propagate opinions contrary both to their judgment and their conscience. At the expence of truth and character they have fomented, and taken advantage of, the mistaken prejudices of those who are not capable of judging for themselves, and who must therefore be guided by others, to depreciate the value of this great blessing to mankind.

Society has a fair claim to expect that the executive government should enquire into this matter, and adopt some strong measures to arrest the propagation of so contagious a disease as Small-pox, by which the lives of many children are annually sacrificed. It is an evil of great political magnitude, and affects in no small degree the population of the empire.

If people will be inoculated for the Small-pox, a licence should be taken out upon the oath of a medical man before a magistrate, and a bond given that only the person or persons comprehended in such licence should be inoculated. A bond should also be required from the patient, or the patient's friends, that the inoculated person should not go into any public road or path*, or in any public carriage, and that the persons in the house should have no communication with any other house for a time to be specified, nor until an affidavit has been made by a medical man that all proper measures have been taken to purify the house, and

* It is not sufficiently known that by the common law of the land, persons are liable to a penalty for exposing themselves, or others, in any common road, whilst labouring under the Small-pox. The law is a dead letter, if it is not enforced under the sanction of authority; and it cannot be expected that private individuals will incur the odium attached to informers.

There has been a trial this Easter Term (1815), in the Court of King's Bench, in which the defendants were convicted of a nuisance at common law, for exposing a child in a common road, whereby several lives were lost from the small pox caught from that child.

that, to the best of his belief, it is free from infection.*

The great mortality of young children is however not alone referable to the variable-ness, or severity of climate, exposure to cold, to bad air, to improper clothing, to the prevalence of contagious disorders, nor to a defect in legislative enactments and restrictions.

Children are liable to many disorders, which, if not peculiar to themselves, are very much modified by the circumstances of infancy and childhood, and which will often prove dangerous, and even sometimes fatal, notwithstanding the best care and attention.

Moreover some disorders are exclusively

* Since the above was written, Lord Boringdon, moved by a laudable spirit of humanity, has called the attention of parliament to the subject, and he deserves the thanks of society for his exertions in the cause of humanity. But he has to regret the want of that support, which the importance of his proposed bill for preventing the extension of the Small-pox required.

confined to the early periods of life, which require as much skill in the investigation and treatment as any of the diseases of more advanced age. From the want of skill and experience (such diseases, being either not understood, or improperly treated) many lives are lost, which might have been preserved to their parents and the community.

Important, as the attention to the diseases of children confessedly is, no part of medicine (to use no stronger expression) has been so little cultivated.

In all the works of all the best writers, from the age of Hippocrates to the present inclusive, scarcely any practical information is to be found upon this subject, unless a few scattered and detached observations may be so considered.

The reason of this is sufficiently apparent, when it is recollected that the practice of midwifery among the ancients, in all nations whose history is known, was committed to women only, and those generally of the most

ignorant description*. From this cause it would naturally follow that the treatment of the complaints of children, as well as the general regulation of their diet, &c. would devolve upon a class of persons utterly incompetent to make, far less to record any useful observations. Ignorance is generally presumptuous, and they would soon think themselves competent to act as physicians in the diseases of children, and little disposed to ask assistance from others†. Hence the ancient physicians were deprived of the means of procuring information, and the deficiency of it in their writings is therefore less a matter of surprise.

In this country the practice of the healing art is divided between physicians and

* Terence, in his *Andrian*, thus describes the midwife. Sane pol ! Ista temulenta est mulier & temeraria.

† Etsi vero nonnulli existimant infantium morbos solum naturæ & mulieribus, quæ infantes tractant, committendos esse ; tamen & hic medico suæ partes sunt. Sennertus.

surgeons; the latter of whom, till of late years, were very little acquainted with medicine. Women were principally employed in the practice of midwifery, and surgeons were called to cases of mere mechanical difficulty; and seldom saw the patient afterwards.

The establishment of the royal college of physicians appeared very likely to remedy the prevailing ignorance of the persons practising midwifery, (as the members of it by their charter, have a right to practise both surgery and medicine) and to enlarge the knowledge of the diseases of women and children*. But there seems to have been a fatality on this point, and that women and children

* One of the greatest advantages proposed by this institution, was that of examining and admitting into their own body, or licensing all persons, who proposed to practise medicine in the limits of their jurisdiction, touching their skill, after examination by the president and censors, all of whom were supposed to be themselves of good education, and of sufficient age and experience to qualify them as judges of the fitness of candidates.

should not have a reasonable chance of relief in the diseases of child-birth and of early life. *

It would hardly be believed possible in a civilised land, if it did not stand recorded in the bye-laws of the College, that any persons at any time could have had sufficient influence upon so learned a body, (and who were, therefore, less liable to prejudice) to induce a majority of them to accede to a prohibitory bye-law by which the Fellows of the College are compelled to exclude themselves from practising midwifery, and therefore from acquiring much knowledge of the diseases of infants and children. — It seems to be a law calculated for the perpetuation of ignorance, by preventing men of the best education and the highest attain-

* The immortal discoverer of the circulation, (in whose praise an oration is annually delivered in the college of physicians) appears from passages in his works to have practised midwifery himself, and therefore feelingly expresses himself on the point of the low state of midwifery in his time. “*Melius profecto cum pauperculis res agitur, iisque quæ furtim gravidæ factæ clanculum pariunt, nullius obstetricis advocata opera.*” — Harv. de Partu.

ments in learning from adding to the stock of medical knowledge on subjects most dear and important to Society.

To a great degree it must have produced this effect, since in four volumes of the Medical Transactions of the College of Physicians (deservedly considered one of the most learned bodies in Europe) there is not one paper on the sexual disorders of Women, and only three on any disease of Children; one by the late Sir George Baker, and two by the late Dr. Heberden. It is scarcely possible to give a stronger proof of the general want of experience in these diseases, (although they are very numerous,) than this. —

A further confirmation of it is observable in the scantiness of the Observations upon the Diseases of Children which are to be found in the Commentaries of the late Dr. Heberden, published after his death by his son, which contain the principal facts remarked by him in a long life, part of which was spent in very extensive practice.

His son, the present Dr. Heberden, most probably from having observed this deficiency, has published a Synopsis of the Diseases of Children. He appears to have been strongly impressed with the importance of the subject, and to have endeavoured to call his cotemporaries to the active cultivation of this neglected part of medicine. The call does honour to his feelings, and the elegant Latinity of his work hardly yields the palm to any modern writing in medicine.— But however praiseworthy may have been the motives of Dr. Heberden, the practical result will still be, that whilst the prohibitory bye-law above referred to, continues in force, the knowledge of the Diseases of Children will be least known, where it might be cultivated to the greatest advantage.

Physic does not, like the mechanical arts, admit of nice divisions and distinctions — no man can be a very good physician, who has not cultivated anatomy, and worked with his own hands to acquire a knowledge of the healthy structure of the human body, — nor without knowing, (at least generally,) the principles of surgery, so as to be capa-

ble of applying the knowledge of diseased actions and structure, which are objects of the senses in external disorders, to those analogous diseases which are situated internally. — He will be but an indifferent Surgeon, who, to a knowledge of anatomy, and a facility of operation, does not unite a general acquaintance with medicine; and neither will be likely successfully to practise in all cases which may fall under his cognizance, unless he has devoted some attention to the practice of midwifery. — The latter branch of medicine, or surgery, for it partly partakes of both, can only be usefully practised by one, who has a considerable knowledge of anatomy, medicine, and surgery.

It might have been expected that the establishment of the Foundling Hospital in London would have led to some advancement in the knowledge of the Disorders of Children. But the infants received into that asylum are immediately sent to nurses in the country, whence they do not return till they have passed through many of the diseases of childhood. — Hitherto

the medical attendance on this Hospital has only tended to the advancement of individual experience ; but the writer confidently hopes that medical science will hereafter receive some useful additions from the experience of the late physician Dr. Mayo, and from the observations of Dr. Stanger and Dr. Satterley, the present Physicians to that charitable foundation, which affords an ample field for investigating the diseases of early life.

At Dublin there is a still larger establishment of the same kind. — In the Foundling Hospital there, which is supported by Government, all newly-born children, on being presented, are indiscriminately admitted without any recommendation, and are often then in a dying state. — When this is not the case, the infants are sent into the country to be nursed with no superintendence, so that the diseases of early infancy cannot be observed. Both these institutions are well conducted with respect to the preservation of the health of the children when they return from their nurses : — and the writer has

great pleasure in bearing his testimony to the neatness, cleanliness, good order, and general arrangement of the Foundling Hospital in Dublin.

The mortality among the children, soon after their admission, from the circumstances under which they are brought, must necessarily be very great. — There are no laws in Ireland for supporting the necessitous poor, and as the illicit intercourse of the sexes, even among the lowest classes, is very rare, marriages take place very early. — The population of the country from this cause, and from their wants being few, increases very rapidly in the lower orders, and the establishment of a Foundling Hospital becomes indispensably necessary for maintaining the offspring of the poor, till some plan for ameliorating their condition can be devised, and sufficient employment found to enable them to provide for themselves and their families ; which is by no means the case at present.

The late Dr. William Hunter, whose anatomical knowledge and acuteness of

mind eminently fitted him to take the lead in any department of medicine, devoted his talents to the practice of midwifery, published an elaborate work, (an honor to the country) on the anatomy of the gravid uterus, and first discovered the alteration of parts in the retroversion of the uterus. His high character stamped an importance upon midwifery, and led many others into a line of practice, which before his time was almost considered disreputable, from the ignorance of the persons engaged in it, and the pains taken to depreciate it.

Encouraged by his laudable example, Dr. Osborn and Dr. Denman devoted themselves to the pursuit of these branches of the medical profession, and have actively co-operated by the extension of their experience through the medium of their lectures and their writings, to advance the importance of the practice of midwifery, and of the knowledge of the Diseases of Women and Children.

Dr. Underwood, knowing and lamenting the great want of information on the Dis-

eases of Children in the books of medicine, is entitled to the highest praise for having published the first and best systematic work on this subject, the result of a long and extensive experience, which ought to be in the possession of every practitioner. Before the publication of his works, not only students but medical men generally had no guide to direct them in their practice, except a small treatise by Harris, and a very imperfect small volume by Dr. Armstrong.

A detached, but valuable treatise on the disease, now generally known by the name of the Infantile fever, was published by the late Dr. Butter, a licentiate of the College of Physicians, then practising at Derby. This disease had not before his time been at all understood, and had generally been ill-treated from its symptoms not being described by any writer, and was always considered and treated as a common fever, from which it is, however, essentially different.

From this short survey of the state of medical knowlege on these subjects, it must

appear that individual experience and a little traditional information, constituted for ages the whole extent of medical knowledge respecting the Diseases of Children.

In Scotland of late years the diseases of children have been more attended to by Dr. Hamilton and Dr. Burns, whose works on this subject should be in the possession of every medical man.

It ceases then to be a matter of wonder that little confidence was placed in medical men, who neglected these diseases altogether, and that ignorant old women and nurses took charge of the disorders of early life, whose *Materia Medica* was very limited, and confined almost exclusively to the promiscuous use of rhubarb, magnesia, castor oil, antimony, and opiates under various forms. This last class of medicines has generally been exhibited (in a very uncertain dose) in the forms of laudanum, syrup of white poppy, or under some empirical title, as Godfrey's Cordial, or Dalby's Carminative.*

* *Nempe proverbium illud animo tenaci forté com-*

The object of such medicines has been chiefly to allay pain by producing sleep*. These medicines have been ignorantly and indiscriminately given, (and in some instances under the sanction of medical men,) either because they did not themselves know what to do, or to fall in with the desires or prejudices of parents and friends†. But the administration of this class of medicines requires the greatest skill in the physician.

Nothing is more uncertain than the effects of opium on young subjects; and it ought never to be employed even by medical men, except with the greatest caution,

plectentes “Mortuos obmutescere;” neque etiam prorsus immemores, quam gratus sit ægrotis semper somnus, & quam acceptabilis omnibus assidentibus & curatricibus sit curarum remissio & cessatio molestiarum.

Harris de Morb. Acut. Infant.

* A notorious instance of this in a public institution, was not many years ago brought under the cognizance of the parliament of Ireland before the union.

† Και τος διαβολήν γε έχει ὅλη ἡ τέχνη πρὸς των δημοσίων μεγάλην ὡς μηδὲ δοκίειν ὅλως ἰητρικὴν εἶναι.

Ιπποκ. Περὶ διαίτης ορεάν.

as it sometimes acts with much violence, and has proved deleterious even in very small doses*. Half a drachm of genuine syrup of white poppy, and, in some instances, a few drops of Dalby's Carminative, have proved fatal in the course of a few hours to very young infants†.

Antimonial emetics have been very generally used by this description of practitioners, in various diseases of children. — Yet in very small doses these also are sometimes extremely violent and unsafe medicines. A quarter of a grain of tartrate of antimony in solution has been known to excite a vomiting which has ended in the death of a young child, which before was in no danger.

Emetics have been indeed too frequently

* Ex crebro usu syrupi Diacodii in infante lethalem epilepsiam animadverti: vidi quoque mentis stuporem infantibus remansisse, quibus pulveres anodynii et theriacali frequentius fuerunt exhibita. — Hoffman. de Epilepsia, § 5.

† Since this paragraph was written the writer has seen another case in which forty drops of Dalby's Carminative destroyed an infant.

and incautiously exhibited to children of all ages ; but when they are necessary, ipecacuanha is much more mild in its operation ; and in any reasonable dose, never produces dangerous effects. *

It has been argued that the diseases of infant children could not be investigated, because they are not capable of describing their complaints, and that a physician, on that account, cannot understand them. — This, however, is not altogether true. Their color, figure, fatness, leanness, paleness, redness, the tone of the skin, the general or local heat, or coldness, gestures, cries, brightness or dullness of the eyes,

* Many good observations upon the improper exhibition of emetics are to be found in a very useful practical work on the Diseases of the Stomach, published by Dr. Stone, Physician to the Charter-house, to which the reader is referred. It is to be hoped that medical science will be advanced by the great opportunities which this institution affords for observation, on the diseases both of the young and those of advanced life ; and that Dr. Stone will find time from his practical pursuits to publish the result of his observations on these subjects.

the state of the pupil, the direction of the eyes, the state of the ossification, the straitness or deformity of the skeleton, the tone or atony of the muscular fibres, the state of the abdomen, enlargement of the viscera, the state of the respiration, the various secretions — the excretions — their number, colour, consistence, texture, smell — all these, and many more symptoms of the state of health or disease, present themselves to the consideration of an attentive physician, and leave him without an excuse, if he neglects a part of his duty, in which the feelings of parents, and the good of society, are so materially concerned, as in the cure of the Diseases of Children.

The foregoing remarks render less apology necessary for laying before the Public the following papers on some of the Complaints of Children, which have been made during an extensive practice of more than thirty years.

It is hoped that they may prove useful, at least to the younger part of the profession, and save them the mortification

(which most older practitioners must have felt), of finding themselves at a loss what to do, and without the means (if they were ever so well disposed to study) of acquiring from books, written by practical physicians, such information as may serve to direct them in their own uncertainty and inexperience.

Information does not come by intuition or inspiration. — The laws of nature, in health and disease, must be attentively studied in order to be well understood, and the life of any man, with every advantage of great experience and acute observation, is too short to admit of his adding much new matter to the general stock. This is so important a consideration, that every facility should be afforded to making, and no opportunity lost of recording, the result of individual experience, till a body of facts shall have been collected, which may render the knowledge of the Diseases of Children as perfect as the subject admits of.

CHAP. II.

ON THE STRUCTURE OF THE MOUTH AND ORGANS OF DIGESTION OF CHILDREN, AND THE DIET PROPER FOR THEM AT DIFFERENT AGES DEPENDANT UPON IT.

MANY of the Diseases of Infants and older Children, the connexion of which with the organs of digestion does not at first sight appear to be very direct, yet may, without much difficulty, be traced to them as their source. Such are the disorders attendant upon dentition, scrophula, incurvation of the spine, rickets, enlargement of the absorbent glands of the mesentery and in other parts of the body, many eruptions on the skin, phthisis, inflammation of the brain, the remitting infantile fever, marasmus, &c.

If this be so, then it is very important that the diet of children should be attended

to from their earliest life. This is very tender ground to tread upon, because it is beset with all the difficulties which ignorance, inveterate prejudice, and supposed knowledge, can raise. To combat these is perhaps a fruitless, certainly a very unpopular task. There is nothing which men retain with such pertinaciousness as their prejudices, and they are always unwilling to believe that they can have been in an error through great part of their lives; they are, therefore, often not content with defending their own mistakes, or preconceived notions, but they enlist themselves to maintain the prejudices of their forefathers, and in this feeling exultingly ask, with a tone of supposed victory, how, if these things were so, the world has escaped depopulation? With persons entertaining such opinions, no arguments, drawn from the wise operations of nature, will have much weight:—to such therefore they are not addressed. — But there are not wanting many, who will give a fair and unbiassed consideration to the subject, and will be ready to correct their errors, if it should be proved that they have

been acting under the influence of a mistaken principle, and to change their conduct, if it can be shewn that it has been wrong.

Every physician knows of what importance Hippocrates considered the question of diet, and that he has devoted a considerable part of his works to this subject alone. If life and health are maintained by air and food, it cannot be a matter of indifference what kind of food is taken into the stomach.

It may be asked, how and in what manner can improprieties in the diet of children lay the foundation of such diseases as those above stated. The question may be shortly answered here, reserving a more detailed and particular account of the matter for another occasion.

Few will be disposed to dispute that dentition is often attended with inflammation, and that the fuller the diet of any person at any age may be, the more prone he will be to local inflammation.

If then an infant-child takes such food as will have a tendency to form too much blood, and to increase the force and frequency of the circulation, it will be more likely to suffer from inflammation, during the process of forming the teeth, than if the diet were of a more simple and less stimulating quality. The same observation will apply to the frequent occurrence of peripneumony*, inflammation of the wind-pipe, catarrhal affections, inflammation of the brain, and other diseases of an inflammatory character.

The absorbent glands, too, must be supposed to have been adapted by the Creator to certain substances which should pass through them, and to no others. If different matters be applied to them, and they are compelled to perform functions for which they were not originally designed, they will become diseased themselves, and

* It is worthy of remark how seldom children are liable to pleurisy from exposure to cold, whilst they seem to be at least as susceptible of catarrh and peripneumony as adults, if they are not even more so.

the remote cause of disease in other parts. All the mischief which can arise from the want of nourishment, or from improper nourishment, acts through the medium of the absorbents and their glands situated in the mesentery; and there can hardly be a question that the fluids of the whole body must be very different, according as the materials from which they are formed are proper, or otherwise.

The secretions too must be, from the same cause, different. It is probable that the formation of bone will be affected by it, and so it is not difficult to trace the source of diseased absorbent glands, in various parts of the body, of rickets, incurvation of different parts of the skeleton, scrophula, &c. to improprieties in diet, at very early periods of life.

If this then be a fair view of the matter, it becomes a proper subject of enquiry what ought to be the diet of children, under the circumstances of health, according to the difference of their age, with a view to the

promoting of health, and the prevention of disease.

When diseases have actually taken place, the diet must undergo some alterations, adapted to the nature of such disease, and to the disordered state both of the stomach and of the organs of digestion, and the derangement of their functions.

In order to throw farther light on the subject, it will be necessary to take a cursory view of the structure of the different orders of animals, in respect to the organization of their mouths and stomachs, and to shew how the mouth and stomach are reciprocally adapted to each other.

Some animals appear to live entirely by suction; their food is consequently of a fluid kind, and requires no mastication nor trituration, and the whole of the animal, as far as appears by dissection, seems to be a stomach. This stomach sometimes is a simple cavity, as in some species of Hydroids. In others it is intersected by parallel

membranous partitions, dividing the cavity into separate chambers, each communicating with the other. They have no intestinal canal, no heart, none of those glands which are connected with the chylo-poietic viscera of more complex animals, and no known genital organs; of this kind is the leech, (*hirudo medicinalis* & *sanguisuga*).*

Another great class consists of animals which are endowed with teeth, for cutting, masticating, catching, or tearing their food. The structure of their teeth is strictly connected with the kind of food on which they live, and is employed to prepare the food for the digesting stomach †. In some animals the teeth are

* Blood sucked by leeches does not, in their bodies, undergo the same changes as when it flows from a vessel. It remains a homo-geneous fluid, not separating into coagulum and serum. .

† It is not necessary in this place to take notice of birds, which have gizzards to supply the place of a mill, or teeth for tritulating their food, because their structure does not in any way apply to that of the human body in this respect.

placed at the orifice of the stomach, at a distance from the mouth of the animal, as in the common lobster, in which one cuspidatus or canine tooth, and two molares are found so situated. These being placed at the lower end of the æsophagus, every thing which passes into the stomach must be previously broken into small pieces by the operation of them.

In most quadrupeds, and in man, who, in his internal structure, resembles many of them, the teeth are placed in the mouth, at a distance from the stomach, for the sake of convenience. Here they cut, grind, and prepare the food, before it is received into the digesting stomach. It is reduced in the mouth into the state of a pulp, being there mixed with the fluid secreted by the salivary glands. This fluid appears to be necessary to the process of digestion, and its use can hardly be dispensed with.

Persons, who from carelessness in chewing, or from want of teeth, swallow their food without any, or with very little mastication, even though it be reduced into

small masses by cutting it, rarely digest it perfectly; and it is observable, that in ruminating animals it is regurgitated into the mouth, from the first stomach, to be again subjected to the process of mastication, before it passes into the digesting stomach, in which it is mixed with a large quantity of saliva. In animals which have teeth, there is a considerable variety as to the number in different species; the structure of them also differs very much, according as the animal lives upon animal or vegetable food, or both: and it is particularly to be remarked, that there are no *dentes cuspidati* or canine teeth in the pecora, as the stag, goat, sheep, and ox, nor in the horse, hare, rabbit, and other animals which live exclusively on vegetable food; whilst they are constantly found in all those animals, which in a natural state subsist on animal food only, as in the lion, tyger, dog, &c.

Some of the carnivorous animals may by art be brought to live on vegetable diet, but many of the former have such an aversion to animal food, that they will rather be starved than eat it; hence it may fairly be inferred,

that their stomach is not adapted for the digestion of it, nor their absorbent system for applying it to nourishment. Yet both of these orders of animals, though nourished from very different materials, form bones and flesh apparently consisting of the same chemical elements.

The flesh of graminivorous animals, exposed to chemical processes, furnishes substances which are not to be discovered at all in the materials by which they are nourished, but which are to be found in the food of carnivorous animals. Ammonia (the volatile alkali) is of this kind.

It is next to be enquired, how far the state of the mouth of man, at different periods of his existence, and the correspondent state of his stomach, resembles that of other animals, and whether the same kind of food is proper for him at every period of his life.

If the principles already laid down be true, it cannot reasonably be maintained that a child's mouth without teeth, and

that of an adult, furnished with the teeth of carnivorous and graminivorous animals, are designed by the Creator for the same sort of food. If the mastication of solid food, whether animal or vegetable, and a due admixture of saliva, be necessary for digestion, then solid food cannot be proper, when there is no power of mastication. If it is swallowed in large masses, it cannot be masticated at all, and will have but a small chance of being digested; and in an undigested state it will prove injurious to the stomach and to the other organs concerned in digestion, by forming unnatural compounds. The practice of giving solid food to a toothless child is not less absurd than to expect corn to be ground where there is no apparatus for grinding it. That which would be considered as an evidence of idiotism or insanity in the last instance, is defended and practised in the former. If, on the other hand, to obviate this evil, the solid matter, whether animal or vegetable, be previously broken into small masses, the infant will instantly swallow it, but it will be unmixed with saliva. Yet in every day's observation it will be seen, that children are so fed in their most ten-

der age, and it is not wonderful that present evils are by this means produced, and the foundation laid for future disease.

The power of digestion in infants is very weak, and the food designed for them, in the earliest period of their existence, by the author of nature, contains but a very minute quantity of nutritious matter, diffused through a large quantity of water, yet quite sufficient for all the purposes of life. It is taken very slowly into the stomach, being procured by the act of sucking, in which a great quantity of saliva is secreted and swallowed with it.

Nothing can be more contrary to this than to stuff a child's mouth and stomach with solid (perhaps animal) food, or even to pour down its throat, with a spoon, milk and bread, or any other solid matter, without sucking, mastication, or the secretion of saliva.

To give an infant the best chance of health, it should live exclusively upon the milk of a healthy woman, and that woman should be its mother, if she is healthy and capable of nursing it. Scarcely any thing will

compensate for the want of this natural support. Multitudes of children die, literally starved, under the eye of persons who would shudder at infanticide, and the exposure of children, as it is practised in China; as if a speedy death were not preferable to a life cruelly protracted, in distress, pain, disease, and agony, and at last miserably terminated.

Such truths are very unwelcome, but they should be told and felt. The occurrence of the facts is not rare; but it is an evil of great magnitude and extensive operation, and every measure should be taken to discourage it. It is a lamentable reflection that civilized society is inferior to that of barbarians and even brutes in this respect, who generally cling to the preservation of their young; and the lowest orders of animals will even endanger their own to protect the lives of their helpless offspring.

No rank, or station of society, can plead an exemption from the exercise of the natural and moral duties; and every healthy woman, who suckles her own child, not only discharges a claim which her child has

upon her, but sets an example to her equals and inferiors, which may be productive of the best consequences.

No woman can answer for the extent of bad example in this respect. Mankind are prone to imitation, and they will even imitate the failings, the follies, the vices, and the diseases, of those who take the lead in fashion *. It is therefore of more consequence that people in the higher stations, if they are healthy and strong, should devote themselves to the care and suckling of their own children than any others, because the effect of their example is greater and more widely diffused. Besides, the milk secreted by the mother varies very much as the age of the child advances, and that which is adapted for a child seven months old, is by no means composed of the same proportion of constituent parts as it was six months before.

* The story is familiar of certain courtiers, who sat down with great caution to imitate the disease of their sovereign, who was afflicted with piles, that they too might be supposed to labour under the same disease, in compliment to their master.

Women, in all stations of life, are sometimes, from original weakness of constitution, from debility acquired by education, or by previous disease, not fit to be nurses; and their children must, in such cases, be reared in some other manner. The breasts of some mothers, too, are not well formed for nursing, by having had their nipples injured or destroyed by their dress, or by disease, at an early period of their lives; and others do not secrete milk in sufficient quantity to nourish their offspring; some are attacked with disease of their breasts, or labour under a chronic disorder of the constitution, as scrophula, phthisis pulmonalis, &c. or are attacked by fever or local inflammation, during the time of suckling. With every disposition to fulfil their maternal duties, such women are prevented by physical impediments. Under these circumstances some other provision must be sought for their infants.

Some husbands, from vitiated minds, are averse from their wives suckling their own offspring; in such a case no blame attaches to the mother — but the father has

much to answer for, who labours to pervert the natural affection of a woman for her child ; and if he induces her to break one of the strongest ties of nature, he has but small right to complain, if she is not very rigid in observing others, which are weaker.

Many women in the highest stations of society, have, of late years, very much to their own credit, set an example of suckling their own children, and have had the good sense to break through the trammels of folly and fashion. Where, however, from such physical causes as have been stated above, a child cannot have the advantage of its mother's milk and superintending care, the best substitute is a wet nurse ; and perhaps those women who have lost their own children, or have reared them, might be sufficiently numerous to satisfy the real demands of necessity.

As the matter however stands at present, it is hardly a question whether society at large is a gainer or loser by the employment of hired wet nurses. If the child lives, for which the wet nurse is invited by

the prospect of present gain to forsake her own, the child of the wet nurse often dies, or it becomes diseased or crippled. Her other children are neglected, and her husband, for want of her society, becomes drunken and profligate: she rarely returns home contented with her former station, but compares her present privations with the indulgences which she has left: the whole comfort of the labouring man's fire-side is broken up, and society has only exchanged the life of one child for that of another, with all the disadvantages above enumerated.*

* From the consideration of the prodigious mortality of the children of wet nurses †, Dr. Denman and some other physicians and surgeons, practising midwifery, of whom the writer was one, a few years ago, endeavoured to establish an asylum where the children of wet nurses might be received and nursed, and voluntary subscriptions were very liberally made for the support of it;—but it was found that the expenditure was too great to be supported by private munificence; and the projectors had the mortification of being compelled to relinquish the plan altogether, for want of sufficient means to uphold it.

† In some families six, in others eight wet nurses had lost their own children.

On the whole it would be better, perhaps, that the children of the wealthy should be brought up artificially, where the mother does not suckle, because they would have every advantage of good nursing, cleanliness, air, and medical treatment, and would therefore have a better chance of living than the child of the wet nurse, who will want all these advantages.

With every attention which can be paid to them, children brought up by hand will often die. Perhaps the most desirable thing would be, that a strong wet nurse should, as far as she is able, suckle her own and the foster child, and that the deficiency of both should be supplied by artificial food. It may be objected that this would be very inconvenient in a family; but inconveniences must be submitted to where a life is at stake. It is very inconvenient for a man to jump into a river to save the life of a drowning fellow-creature, but the inconvenience would hardly be admitted as an excuse for omitting to do it. Many persons have not given a due (per-

haps no) consideration to this subject, who, if they had, would, from a sense of moral principle, act very differently, and not think themselves justified in preserving the health of their own child at the expence of the life of another.

It is a bad defence of bringing up children by hand, where the mother could suckle them, that some who are so treated live and are strong; there is hardly any abuse which may not be supported by such examples. For one such instance, however, ten might be produced of children who die under the experiment: but the grave tells no tales, and the very persons who vaunt of the success of one such experiment, artfully conceal the death of those who have fallen sacrifices to similar trials in their own families.

To return from this digression; when a child is brought up by hand, the food should be entirely fluid, and taken by suction, till it has teeth: bottles to answer this purpose are now commonly sold in the

glass shops of the metropolis, and by most of the makers of surgeons' instruments.

Ass's milk is the best substitute for that of the mother — cow's milk is too rich, containing too much oil and cheesy matter. It is moreover formed by the gastric juice in the stomach into a firm curd, which is not digestible by the stomach of an infant*. Diluting it with water does not entirely prevent this; therefore, when ass's milk cannot be procured, it is best to mix cow's milk, previously skimmed, with two-thirds or three-fourths of its measure of gruel made from pearl barley, grits, rice, or arrow root. When so mixed, it does not become hard in the stomach, as when diluted with water alone, but forms a thick fluid. As a child advances in age the proportion of milk may be gradually encreased.

Where this food does not agree with

* The writer has frequently been called, and has found a family in great alarm at a child's having vomited a white hard substance, which proved to be nothing but a lump of undigested curd.

a child, weak mutton, chicken, or beef broth, clear and free from fat, mixed with an equal méasure of any of the mucilaginous or farinaceous decoctions above mentioned, may be tried. As soon as a child has got any of the teeth called incisors, solid farinaceous matter, boiled in water, beaten through a sieve, and mixed with a small quantity of milk, may be employed: and then, for the first time, the child should be fed by hand. Weak broth may be substituted if cow's or ass's milk does not agree. With some children no form in which cow's milk can be given will agree, but the stomach will digest farinaceous decoctions mixed with a little cream, which will not coagulate there.

When the molares or grinding teeth have protruded through the gums, the child should live upon farinaceous matter, mixed with milk, or weak broth, but the bread need not be beaten through a sieve, because the child has now an apparatus for grinding it.

Solid animal food should not be eaten

till the child has all the cuspidati, or canine teeth, and then in small quantity, and only once in a day. The animal food given to young children should be plainly roasted, or boiled, hot or cold; fried and broiled meats, and all food heated a second time by hashing or mincing it, being less digestible, should be avoided. Many people, from a mistaken expectation of strengthening weakly children, give them more animal food, and sometimes twice or thrice in a day; but it will be found much more frequently to add to the debility than to increase the strength. Those children on the whole are most healthy, who eat the least animal food, and it certainly is not absolutely necessary, since there are whole nations who entirely abstain from it, living upon farinaceous food alone, yet are able to endure all the fatigue attendant on bodily labour, in the hottest climates.

Nothing is more absurd than the notion that in early life children require a variety of food; one only food is provided by nature for them, and it is too presumptuous to assume that the Creator of the world

acted in error, and that the ingenuity of man is able to correct it, or make any improvement in his works.

Water, either simple, or with toasted bread infused in it, or rennet whey, are the best beverage for children; they require no other, and the practice, very common in some families, of giving wine to healthy children, is not to be recommended, or even justified upon any principle. Such stimulants are unnecessary (to say the least of them), and very often prove highly injurious. In disease wine may sometimes be used with advantage, but it is usually detrimental to healthy children, and should only be given under the direction of a medical man.

These observations upon diet will to some appear unnecessary and too minute. The conclusions of the writer will be probably objected to by others, who have early imbibed prejudices upon the subject; and, without taking the trouble to consider the matter with attention, have been contented to follow the erroneous opinions of the

multitude, and to surrender the health and lives of their children to persons, whose opinions and advice they would not be willing to take upon the most trivial and unimportant concerns of life.

If the writer errs, he errs with good authority; Hippocrates recommends, in his first Aphorism, attention to the τὰ ἑξωθεν, no less than to the more prominent points of a disease. But even such authority may not have much weight with those who think that nurses and old women “*αγαυαὶ τῆς σοφίας*” are the proper people to regulate these affairs, and that the prevention of disease is of less consequence than that of any other evil to which human nature is liable.

In closing this part of the subject, it may be observed, that it is no easy task to surmount long established prejudices, but the writer feels bold in the consciousness of discharging his duty to society, and, unmindful of the opinion of those, who prefer to retain rather than discard their prejudices, and to persist in, rather than relinquish

an error: he appeals from these to the liberal and enlightened part of his profession and of mankind, and will think himself amply rewarded, if he shall have the good fortune to rescue one child from the hands of ignorance and inexperience, and induce those of the medical profession to cultivate with more assiduity this important subject.

CHAP. III.

ON DENTITION.

IT is not intended, in this place, to give any description of the structure of the teeth, or the process of dentition. Every thing upon this subject has been so well treated by Mr. John Hunter, that it is only necessary to refer the reader to his work upon the teeth for information. It is proposed here to describe those circumstances only respecting dentition, which relate to the prevention or cure of the evils which frequently attend upon it.

As the formation of the teeth in other animals does not produce any bad symptoms, so in the human species it must be equally considered to be a perfectly natural process, and it might reasonably be expected that it would go on without disturbance. Yet all the writers from Hippo-

crates downwards (however little in other respects they may have attended to the complaints of children) describe most formidable symptoms as attending on the process of dentition.*

In children which have been properly, i.e. naturally fed, upon the milk of their mother alone, it generally happens long before the gums swell, or exhibit any marks of the approach of teeth, that an increased secretion of saliva takes place. This is an

* Πρὸς δὲ τὸ ὀδοντοφυεῖν προσάγασιν, ἕλων ὀδαξυσμὸς, πυρετὸς, ἐπασμοί, διάρροιαί, καὶ μαλίστα ὅταν ἀναγῶσι τοὺς κυνόδοντας.

Ιπποκρ. αφορ. Τμ. 3, αφ. 25.

“ Gravis, imo sæpe periculosa est dentitio in infantibus ob morbos & symptomata, ita ut non pauci febribus, aut convulsione superveniente moriantur.” Sennert, 56.

“ Deinde infantes febribus corripuntur ubi dentes ipsis (gingivis) erumpunt.” Sennert, 26.

“ Quamvis enim dentium eruptio naturalis sit & in multis infantibus absque multa molestia contingat, in quibusdam tamen gravibus dentitio stipatur symptomatibus.” Van Swieten, Ludg. Batav. p. 745, vol. 4.

“ Crebrior attestatur experientia maximum numerum & dimidiam fere partem singulis annis in quavis urbe

evidence of a more active circulation in the branches of the external carotid artery, which supply the mouth; but it is probable that this evacuation, though only accidentally produced, from the vicinity of the salivary glands, has the effect of lessening any inflammation which might otherwise arise from the advance of the teeth towards the gums. Nothing is more certain than that those children in whom there is profuse salivation, suffer fewest inconveniences during the process.

“convulsionibus, vel a dentitione difficili interire.”
Hoffman de Epilepsia, c. v.

“Inter omnes affectus, qui vitæ infantum terminantur, nullus tot gravia symptomata prognerare solet, quot dentitio difficilis & laboriosus.” Harris de Morb. Infant. p. 76.

Astruc mentions convulsions as arising from teething.

“Children who are seized suddenly with strong convulsions, &c. whilst they are cutting their teeth, may often be said to die of teething.” Armstrong on Dis. of Children, p. 76.

“If several teeth pierce the gums at the same time, dentition will be accompanied with fever, anxiety, startings, convulsions, &c.” Rosenstein, Engl. Transl. p. 22.

Many circumstances conspire to produce difficult dentition in children. It rarely happens that they live solely upon the natural food (human milk) during the early months of their existence. If they take a different diet, and it should not be digested, it may produce various ailments; but if it should be digested, and if, from this cause, they should become too full of blood, and the heart and arteries be disposed to act too powerfully, more blood will be determined to the head than

“ I have no doubt that the time of teething ought to be ranked amongst the most dangerous to infants.” Underwood, V. i. p. 204.

“ If convulsions arise from teething, &c.” Underwood, V. i. p. 131.

“ Neque vero ignorari oportet nullam esse ætatem, in quâ frequentius epilepticum malum tyrannidem suam exercet, quam infantilem, &c.” Hoff. de Epil. § 5.

“ Quid enim crebrius contingit, quam ut infantes ex dentitione difficili in epilepsiam incidant.” Hoff. § 18.

Other authorities might be quoted, but these are sufficient to establish the fact, that the process of teething in the human subject is by no means free from danger.

would naturally happen ; more inflammation of the gums will arise, attended with eruptions about the head and face, and behind the ears, and, in some instances, with convulsions. But these are to be considered as symptoms artificially produced ; for if the attentions suggested in a former part of these Commentaries be paid to the diet of a child, they will commonly be prevented.

Another error in the management of children, which probably adds to the inconveniences of dentition, in this country, is that of keeping the heads of young children very warm by clothing, by their wearing often flannel caps, by having their heads almost constantly wrapped in a warm woollen shawl, by sleeping on very soft pillows, which nearly envelope their heads, and frequently with curtains drawn closely round them. The formation of the teeth naturally invites blood to the head, and by these erroneous measures, adopted to prevent cold, more blood is determined to that part, from which the consequences above de-

scribed will be likely to arise. It will be found in practice, that children whose heads are kept most cool, and are daily washed with cold water, are less liable to serious complaints at the time of teething. Even weakly children, and those otherwise not healthy, frequently suffer little or not at all during dentition, because, from the nature of their constitutions, they are less susceptible of inflammation and fever.

The evils resulting in dentition, from an improper mode of managing children, are often prevented by the natural salivation, generally attendant on dentition, and in some instances by spontaneous diarrhæa — the former acts as a local evacuation from the inflamed parts — the latter partly by determining the circulation to the intestines from the head; but principally by its effects in lessening the quantity of blood in the system, and diminishing the strong action of the heart and arteries.

The art of medicine does not furnish practitioners with any means of producing

an artificial salivation in children, but if there is reason for believing that the constitution is too much disposed to plethora, (which may be known by the fatness and florid complexion of a child) it will not be difficult to excite artificial diarrhæa. Saline purgatives answer the purpose better than any other; and of these the sulphate or super-sulphate of potash, in such doses as to procure two or three loose evacuations in twenty-four hours, appears to be the best, as it is of slow solution, and therefore may be concealed in various substances which children may easily be induced to take. This saline preparation is less apt to disorder the stomach, and to produce sickness, than many others. It is, however, not very important what saline purgative is exhibited; all of them possess the property of producing watery stools, which in these cases is very desirable.

If it should happen that the diet has not been attended to, nor any means employed to counteract the ill consequences arising from accumulation of blood in the consti-

tution, various other disorders are likely to be produced.*

When eruptions about the body, but especially on the head and face or behind the ears, appear during the time of dentition, if local remedies of any kind are employed to cure them, purgative medicines should be administered at the same time, and repeated occasionally for several weeks afterwards, and the diet should be lowered, else it not unfrequently happens, that the cure of such ailments is soon followed by organic affection of the brain. If such cutaneous diseases are not important, it is better to leave them unassisted, than to cure them suddenly by local means. If they are very extensive on the outside of the head and face, and it should be thought advisable to attempt the cure of them, it

* “Crusta lactea, achores, favi. Talia ulcera plerumque in infantibus ad secundam valetudinem facere cre-
duntur, nec sine causâ. Si evanescant, infantes in
febres & alios morbos incidunt.” Sennert, p. 30.

“Deinde infantes, febribus corripiantur, ubi dentes
ipsis erumpunt.” Sennert, p. 26.

would not be right to attempt to heal the whole at once, and above all things the diet and the state of the bowels, as has just been observed, should be minutely attended to.

The same observation applies to the cure of ophthalmia in children, when it occurs during the period of dentition, or soon afterwards. Many cases have fallen within the observation of the writer, in which, from inattention to this circumstance, inflammation of the brain has been produced, and ultimately effusion of water between the membranes, or in the cavity of the ventricles.

When the gums are much tumefied they should be freely divided; the discharge of blood from the operation will generally lessen the local inflammation and the painful distention, and then the increased determination of the circulation towards the head will often subside. The objections which formerly were taken to dividing the gums, now scarcely deserve notice, because it is well ascertained, that it is always done with impunity, and often with great advantage. If the division of

the gums should be unnecessarily performed, no inconvenience can result from it, but great mischief may arise from omitting it, when required. In performing this operation (trifling as it appears), it has been well observed by Dr. Underwood, that it is not enough simply to scarify the surface of the gums, but the incision should be carried down to the tooth, so that the membrane which covers the tooth shall be also divided. When the gums lying upon the molares require to be divided, it is not sufficient to make the incision merely in the direction of the jaw, but transverse incisions must be also made, to set the tooth quite at liberty, so that in its farther advance it may never irritate the gum again.

In children of full habit, more particular attention should be paid to the state of the gums during dentition, and when they appear distended it is better to divide them; especially if any symptoms of inflammation or fever should exist at the time, or have been before excited by the progress of other teeth towards the surface. If these symp-

toms should not yield to purging and dividing the gums, the use of the tepid bath, once or twice in twenty-four hours, and the exhibition of small doses of ipecacuanha (which may be given with a little sugar, and a saline draught afterwards) will be attended with advantage.

It has been proposed, and often practised under these circumstances, to give opium in various forms to children, especially when the inflammation of the gums is attended with much pain; but this practice should be pursued with great caution, not only on account of the uncertain and sometimes hazardous effects of it, but because it draws a veil between the physician and the disease; by which means the early stages of pressure on the brain are sometimes concealed, and the symptoms of a dangerous disorder mistaken for the mere effects of opium. If this medicine be given, it need hardly be observed, that those forms of it alone should be employed, which are to be found in the national pharmacopæias of the United Kingdom, and not any of those

empyrical mixtures, for the accurate composition of which no person is in any way responsible.

It would not be very consolatory to parents whose child might happen to be destroyed by such a medicine, to be told that probably it was not well prepared. In any case, inasmuch as the composition of them is kept secret, nothing can justify their exhibition, whilst there are preparations of opium, and of white poppy, of which the strength is well known and the composition clearly ascertained.

Fomenting the side of the face with a solution of extract of poppy, in decoction of camomile, (in the proportion of half an ounce of the extract to a quart of the decoction), by means of a flat sponge, which retains the warmth longer, and does not soon part with the fluid, will be found beneficial in cases of great irritation, and is not attended with the inconvenience of opiates internally given.

The stamp duty on the sale of quack me-

dicines is very considerable, and a minister may not be very well disposed to give it up, but it is a gross reflection on the morality of any government, which, for the increase of its revenue, barter the health and lives of the subjects of the realm, and virtually sanctions murder for the increase of a tax. This is notoriously the fact, and it ought to be told in plain and intelligible language. No enquiry is made at the stamp office, nor is any specification of the composition of a quack medicine asked or expected, and no account of it is laid before the Royal Colleges of London, Edinburgh, or Dublin. It is enough that stamps are wanted, and they are sold. If a vender of a quack medicine should forge the stamp, he would be liable to suffer death; but if the stamp is honestly purchased, he is then at liberty to affix it with impunity on any composition, however deleterious.

At any rate, if quack medicines are permitted to be vended at all, the composition of them should be verified on oath, before competent judges, and the proprietors required to prove the composition to be

agreeable to the specification, under a severe penalty in cases of concealment or perjury.*

It is no answer, or at least a very weak one, that such medicines have been often prescribed by medical men — they, like the rest of mankind, have their failings, their weaknesses, their prejudices ; these, when they occur, should be corrected, for the sake of those whose lives may be at stake. Neither is it a satisfactory reply that some of the most valuable medicines, as James's powder, &c. have been brought into use by persons who have kept the compositions secret. Their efficacy would not have been less, if the manner of preparing them had

* In the schedule of the medicine act, are enumerated several hundreds of external and internal medicines, which are permitted to be sold, if the duties and licences are paid, and they are described in the act as “drugs, herbs, pills, waters, essences, tinctures, powders, and other preparations, to be used and applied externally or internally, as medicines for the human body ;” “which are advertised or recommended by the vendor as nostrums or medicines for prevention or cure of complaints as aforesaid.” 42 Geo. III. c. 56.

been specified, and the propriety of exhibiting them thereby determined.*

It has been observed often, (even as far back as the time of Hippocrates), that children are more liable to be seriously affected by the approach of the dentes cuspидati or canini, than of any other teeth. For this no reason is assignable, arising from the structure of the sockets in which they grow. They are, however, generally the last teeth formed, and it is most probable, that the increased inflammation attendant on this period of dentition, is to be explained by irregularities of diet, (especially the improper indulgence in animal food), before the age at which it commonly occurs.

In conclusion it may be observed, that fewer inconveniences attend on dentition, when the process goes on slowly, than when it is more rapid — when the head has been kept cool than when a contrary practice has been pursued — in those chil-

* Dr. James was a practising physician in London, and knew the properties and effects of medicines.

dren whose diet has been properly regulated, than when less attention has been paid to it—and lastly, in those whose constitutions are least prone to plethora.

CHAP. IV.

ON CONVULSIONS.

UPON consulting the bills of mortality it is impossible not to be struck forcibly with observing the great numbers of persons who are there stated to have died of convulsions. The age of those who have been victims to this and other diseases, is not, however, noticed.

Convulsion is a term of very extensive signification, and cannot be expected to be very accurately defined by the compilers of the bills of mortality, who take their imperfect reports of fatal diseases from the searchers (as they are called); these receive their information generally at second hand, from some of the family of the deceased person. The searchers very often never see the dead body themselves, but frequently take the account and fee

from a servant at the door of a house*. Still, however, with all the inaccuracy to which such reports must necessarily be subject, it is quite certain, that a multitude of children are taken off by convulsions, at an early age.†

Convulsion, however, is a very vague term, and many different diseases have been designated by it; as for instance, the disturbed state of the circulation, produced by the irregular structure of the heart or lungs, or both, or of the large vessels in their immediate vicinity: the symptoms of such irregularity of organization, soon betray themselves after birth, by the mode of respiration, by lividness of parts or of the whole body, (from the imperfect oxygena-

* In many diseases it is common for convulsion to occur immediately before death, and this symptom is set down in the list of convulsions; though the disease which destroyed the patient might be a malignant fever or peritonitis.

† It was impossible that a fact so notorious as this could escape observation; and it is to be found in almost every practical writer, from the time of Hippocrates to the present.

tion of the blood), which exists more or less in such a child at all times, but is greatly augmented by any cause tending to accelerate the circulation, or diminish the capaciousness of the chest. These cases often prove fatal soon after birth, though in a few instances a child has been known to live for several years ; yet it seldom, perhaps never, arrives at maturity.

It is scarcely necessary to observe, that the art of medicine can afford no relief to such cases as these.

But every case in which a livid appearance of the face, &c. occurs, is not one of malformation. If from any accidental cause, such as flatulency, the diaphragm is prevented from descending in the act of inspiration, the lungs cannot be sufficiently expanded to admit a proper quantity of air into them. A paroxysm of this kind will then be produced, which commonly yields either to a strong spontaneous contraction of the stomach, expelling the air which had overdistended it, or to some medicine, stimulating the stomach to contraction,

such as ammonia or æther, in aqua anethi, aqua simentæ, aqua menthæ, or any other mild stimulating medicine, occasionally given, so as to produce the muscular contraction of the stomach. The observations which follow, however, are designed to apply to those convulsions, (any single paroxysm of which agrees with the ordinary definition of epilepsy), and also to some other spasmodic affections, not admitting of so accurate a definition, yet arising from similar causes, and requiring similar treatment.*

The most common case of convulsion in childhood, is that in which there is an universal spasmodic contraction of all the voluntary and many of the involuntary muscles of the body, accompanied by foaming at the mouth, protrusion of the tongue, staring of the eyes, distortion of the eye-

* “ Musculorum convulsio cum sopore.” Cullen.

“ Spasmus clonicus, periodicus, chronicus artuum
“ cum sensuum oppressione.” Sauvages.

“ Agitatio convulsiva universalis, chronica, periodica,
“ cum oppressione sensoriorum, exituque spumæ ex
“ ore.” Vogel.

balls, laborious and obstructed respiration, sometimes accompanied with a violent redness of the face and scalp, in the beginning of the paroxysm, followed by a purple colour of the whole body, at the end of it. This latter symptom sometimes continues till the child dies.

Sometimes, after it has remained a long time without inspiration, a sudden sobbing relieves the impeded circulation, and the blood flows again into its accustomed channels. To the symptoms above enumerated, a state of coma and insensibility generally succeeds, and the child at last falls into a profound sleep, which often lasts for many hours.

From this it awakes, in some instances with the mental faculties unimpaired ; and sometimes, though very rarely, is not again attacked by convulsions. They do generally recur, however, and if no remedies calculated to remove the cause are applied, the paroxysms are frequently repeated till they prove fatal, unless the cause should happen to be of a very temporary nature,

such as the accession of some constitutional disease.

Sometimes, after one or more paroxysms, the child remains paralytic; it loses the mobility of the lower limbs, or of one side of the body.

The power of moving the extremities, in some instances, returns after a considerable time, in a partial degree. In others it is totally lost for the remainder of life. Affections of the brain sometimes occasion paralysis of the lower extremities only, whilst the upper remain entirely unaffected, but such cases are of rare occurrence.

In many cases the faculties of the mind, which before had been perfect, are destroyed, and the child grows up an idiot.

Sometimes permanent squinting succeeds to convulsive paroxysms, or chronic epilepsy, or chorea sancti viti.

Such consequences of this disease are so common that there is scarcely a large vil-

lage in England without an instance of some of these terminations of convulsions.

Convulsions, as far as the experience of the writer enables him to judge, are never an idiopathic disease,* but may generally be traced to some pre-existing cause; or the cause, as in the case of infectious eruptive diseases, such as small-pox, scarlet fever, and measles, will develop itself in the course of a day or two, if the exposure to infection was previously unknown.

The symptoms indicating the approach of convulsions, are often overlooked by parents and nurses, but upon an accurate enquiry made by a medical man, convulsions will most frequently be found to have

* “ When the idiopathic convulsion attacks very young children, it generally terminates very soon, sometimes in ten minutes, and is indeed often fatal, before any means can be made use of.” Underwood, p. 163.

The writer is disposed to attribute this case to some violent and sudden effect produced on the brain (perhaps by extravasation) and a consequent convulsion.

been preceded by febrile symptoms, by drowsiness, by yawning, by sighing, by increased irritability, by impatience of sound and light, by some derangement of the process of digestion, or by some peculiarity of respiration.

CHAP. IV.

ON A PECULIAR SPECIES OF CONVULSION IN
INFANT CHILDREN.

THERE is one case of convulsive affection, which is more apt to be overlooked than any other, because the symptoms are not at first very violent, so as to attract the attention of parents or nurses. It is often mistaken and treated as some other disease, even by medical men; and the true character of it has been little known, even to practitioners generally conversant with infantile disorders: it is therefore less likely to be detected by those who have bestowed little or no attention upon them.

This convulsive affection occurs by paroxysms, with longer or shorter intervals between them, and of longer or shorter

duration in different cases, and in the same case at different times.

It consists in a peculiar mode of inspiration, which it is difficult accurately to describe.

The child having had no apparent warning, is suddenly seized with a spasmodic inspiration, consisting of distinct attempts to fill the chest, between each of which a squeaking noise is often made; the eyes stare, and the child is evidently in great distress; the face and the extremities, if the paroxysm continues long, become purple, the head is thrown backward, and the spine is often bent, as in opisthotonos; at length a strong expiration takes place, a fit of crying generally succeeds, and the child, evidently much exhausted, often falls asleep.

In one of these attacks a child sometimes, but not frequently, dies.

They usually occur many times in the course of the day, and are often brought

on by straining, by exercise, and by fretting, and sometimes they come on from no apparent cause.

They very commonly take place after a full meal, and they often occur immediately upon waking from sleep, though before the time of waking the child had been lying in a most tranquil state. As the breathing is affected by these paroxysms, the complaint is generally referred to the organs of respiration, and it has been sometimes called chronic croup ; but it is very different from croup, and is altogether of a convulsive character, arising from the same causes, and is relieved by the same remedies as other convulsive affections.

Accompanying these symptoms, a bending of the toes downwards, clenching of the fists, and the insertion of the thumbs into the palm of the hands, and bending the fingers upon them, is sometimes found, not only during the paroxysm, but at other times.

Clenching the fist with the thumb in-

serted into the palm of the hand, often exists for a long time in children, without being much observed, yet it is always to be considered as an unfavourable symptom, and frequently is a forerunner of convulsive disorders, being itself a spasmodic affection.

It rarely happens that a child recovers from an attack of this sort, unless the progress of the disorder has been interrupted by a timely application of proper remedies, without a general convulsion. Then the friends become alarmed, and a disease, which had existed for two or three months, is for the first time considered to be important enough to require medical assistance, after all the farago of popular medicines, such as fit drops, soot drops, assafoetida, &c. have been ineffectually applied.

Convulsions of this description seldom, if ever, occur after the expiration of the third year of a child's life, and not often in children which have lived by sucking, till they have teeth, and have never taken animal food till the *dentes cuspidati* have come through

the gums ; this, however is liable to some exceptions.

A long and very attentive consideration of this kind of convulsion, has led the writer to conclude, that in every case of convulsion (be the remote cause whatsoever it may) the brain is at the time organically affected, either directly or indirectly ; directly when convulsions arise from phrenitis, hydrocephalus, or on the sudden retiring of cutaneous eruptions, or of inflammation of the mucous membrane of the eyelids and eyes, or when they appear on the accession of some cutaneous disease, attended with febrile symptoms, especially scarlet fever, small-pox, and (sometimes, though less frequently,) of measles : indirectly, as when they are occasioned by an overloaded stomach or by indigestion, by peripneumony, by inflammation, or suppuration in the cavity of the pericardium, by glandular or other humors pressing on the large vessels leading to the lower extremities, or when they take place in the progress of infantile fever, or in marasmus.

Many circumstances concur to prove that even in chronic cases of epilepsy, both in children and adults, some pressure on the brain is the immediate cause of a paroxysm, either from inordinate fullness of the vessels, or from a tumor in the substance of the brain, or by some sharp process of bone shooting from the inner table of the skull, or a tumor connected with the dura mater, or water deposited between the membranes, or in the cavity of the ventricles of the brain.

Much light has been thrown upon some of these cases, by the anatomical investigation of the state of the brain of persons who have died of these diseases*. This organ is so complicated, and the uses of different parts of it are so little known, that many deviations from the healthy structure of it may exist, so as to bring on severe

* A valuable paper by Sir Everard Home, in the 3d vol. of the Transactions of a Society for promoting medical and chirurgical knowledge, deserves particular attention, being closely connected with this subject.

symptoms, without being detected even by the most skilful anatomists.

It has been observed above, that convulsions arise sometimes from the brain being directly affected, and this requires a more particular explanation.

No one can doubt that in phrenitis, from the very character of the disease, the brain must be liable to pressure in consequence of the greater influx of blood into it, by the carotid and vertebral arteries. The skull cannot expand, and the substance of the brain becomes therefore compressed between the blood and the bone.

It is most probable, that if the diet of children were perfectly natural, if their heads were not kept artificially too warm, they would not suffer, as they do, during dentition. But so long as the present practice of managing children shall prevail, the blood will be invited to the head, increased inflammation of the gums will be produced, during dentition, and

fullness of the vessels of the head, whence, in many cases, convulsions will be produced. *

From the present modes of treating children, before and during dentition, by ignorant persons, they become also liable to cutaneous eruptions about the head and face, and discharges with ulceration behind the ears. Whilst they continue, and also during the existence of ophthalmia in children, the increased discharge from the eruptions, and from the tunica conjunctiva, will diminish in some degree the circulation in the internal carotid artery. When such diseases are suddenly cured, a greater flow

* “ *Quamvis enim dentium emptio naturalis est & in multis infantibus sine magna molestia contingat, in quibusdam tamen gravibus dentitio stipatur symptomatibus, quæ aliquando aliis morbis attribuuntur, licet a solâ dentitione pendeant.*” Van Swieten, *Ludg. Batav.* 1764, p. 745, vol. iv.

“ *Simul solet adesse major salivæ copia, quandoque & tussis, nares pluunt, genæ rubent, & dentis erupturi irritatione, humoribus majori copiâ versus caput derivatis, ut docent symptomata plura.*” Van Swieten, *ibid.* 746.

to the interior will be the natural consequence of the diminished circulation on the exterior of the head, and phrenitis, followed by convulsions, will often take place, as has been already observed.

When scarlet fever, small pox, measles, or any other local disease, exciting irritation in the constitution, occurs in a child, it will be more likely to produce a determination to the brain than in adults, for reasons which will be stated hereafter, in describing phrenitis. The practical fact appears to be so, because the same diseases do not generally in adults produce convulsions; but in a child pressure thus brought on will often occasion a paroxysm of convulsion.

Indirect pressure on the brain, so as to excite convulsions, may occur, as has been above mentioned, from many causes which have a tendency to prevent the free circulation through the lower extremities. In a case (which very lately occurred) it appeared; upon an examination, after death, where universal convulsions had succeeded

to a long continuance of the peculiar convulsive affection of the muscles of inspiration already described*, fullness of the vessels of the brain was found, and water in the ventricles. The thorax was free from disease, but in the abdomen a mass of enlarged mesenteric glands compressed the great vessels against the spine, below the origin of the emulgent arteries, so as to detain the blood in the upper parts of the body, and overcharge the vessels of the head. In a paroxysm of convulsion in this patient, the extreme redness of the scalp and face was so great, as to attract the attention even of the uninformed bye-standers, and it was more apparent from the hair being light and thin.

A remarkable symptom, which existed in this child, was readily explained by investigation after death. There had been for a long time a very copious secretion of urine, much exceeding the quantity usual in children. The tumor was situated di-

* The examination was made by the writer's brother, Mr. C. M. Clarke.

rectly below the origin of the emulgent arteries, so as to impede the farther passage of the blood downwards, which therefore occasioned an enlargement of those arteries, and a greater flow of blood to the kidneys, which therefore secreted more abundantly.

In another infant, which died of convulsions, preceded by the peculiar spasmodic inspiration already described, the pericardium was found to be full of pus. The strong pulsation of the heart had been observed in the lifetime of the patient, (by Mr. Cates of Argyle street, who attended it before the writer saw it, and afterwards with him), and it continued till the child died. In this case the returning blood from the head and lungs found great difficulty in passing through the heart. More would therefore remain in the sinuses and in the large veins, and large branches of the internal veins, and so compress the brain, and occasion convulsions. That they are so produced seems more probable, and more reconcileable to known facts than on any other supposition. All the arguments

founded on * the doctrine of sympathy and irritability are drawn *ab ignoto*, and it seems much more conformable to reason and observation to infer, that such convulsive affections arise from some derangement of organization, however temporary, than to resort for an explanation of them to imaginary causes, and such as offer to the mind no satisfactory conclusions.

* Hippocrates observes, that they who sleep much during dentition are in danger of convulsions — *Περὶ Ἰσχυρῶς Φυγῆς*, 590, vol. i. l. 10.

CHAP. V.

TREATMENT OF CONVULSIONS.

IN considering the treatment of convulsions in children, it will be obvious that some cases must altogether be beyond the reach of medical aid : such are those which depend upon scrophulous, or other tumors situated in the substance of the brain ;* upon tumors of the dura mater, and upon bony tumors, arising from the internal table of the skull : congenital hydrocephalus internus is also of this kind, and perhaps many other derangements of structure, not capa-

* About five years ago a child died, which had been for some months suffering violent pain of the head, which frequently occurred, and was often followed by paroxysms of convulsions. The child died in one of these attacks, and upon examination of the head, a strumous tumor, of the size of a common walnut, was found in the substance of the left hemisphere of the brain, projecting into the lateral ventricle of that side.

ble of being detected, until a more perfect state of anatomical knowledge, as to the minute structure of the brain, may throw greater light upon the uses of the different parts of this organ, which, though complex, is yet very regular in its healthy organization.

Many parts of it, such as the corpora pyramidalia, the corpora quadrigemina, the pineal gland, &c. from being universally found, must be necessary for some purposes in the economy of the brain, yet the uses of them are not even guessed at, with any reasonable probability, much less understood.

Yet very small alterations in their structure or situation may be of great importance to the functions of the brain, and interfere exceedingly with the due and equal distribution of the influence of the nerves on the rest of the frame. The whole is involved in great obscurity, and very little is known at present of the uses of even the more gross parts of this organ. Physiological researches have not yet been able to

explain, satisfactorily, the intentions of the Creator in the structure of the dura and pia mater, nor to assign the offices of the tunica arachnoides, or even of the ventricles of the brain; nor to develop the reason for any part of its organization in a state of health, nor to account for the large quantity of blood perpetually carried to a part which, when examined, after the sudden death of persons before in health, appears so little vascular. Even the finest coloured injections, employed for anatomical purposes, go to and return from the brain without making so much alteration in the color of the parenchymatous substance of it, as might be expected.

It has been urged, that if convulsions were produced by a scrophulous or bony tumor pressing on the brain, they should be more constant — but in fractures of the skull, with depression from sudden accidents, convulsions are not constantly present, and it is most probable, that they are immediately excited in both cases by some increase of pressure, occasioned by an acceleration of the circulation.

It would be very difficult, during life, to form any idea that there existed a tumor pressing on the lower part of the aorta so as to detain the blood in the upper parts of the body, and occasion a more than ordinary degree of fullness in the vessels of the head, as happened in the instance related above.

The symptoms of chronic hydrocephalus (which might have existed in the mother's womb) are well enough marked, after the head has increased in bulk, and as the child advances in age, when the sutures and fontanelles become obviously more and more enlarged, the pupils of the eyes dilated, the senses blunted, and when the reasoning faculty is found to be defective. But in early life, congenital hydrocephalus may exist and betray no symptoms. The whole system is, as it were, adapted to the irregularity of the structure of the brain.*

* The brain does not appear to be necessary for the formation or functions of the foetus, since children are often born with all the other parts of the body perfect, yet without any brain.

Sometimes the ordinary functions proceed naturally, and the child appears to thrive. In other instances only slight convulsive affections exhibit themselves, such as a propensity to clench the fist. In some the digestion will be slightly impaired, and the evacuations from the bowels will be irregular, or of a bad quality, and the case is treated as one of disordered digestion, for want of any symptom indicating the true character of the disease. At length either the disease is rendered clear, by some symptoms of oppressed brain occurring, or inflammation is casually excited in a brain predisposed to disease, * and convulsions come on, which sometimes soon terminate in death; or they are repeated from time to time, whilst the child drags on a state of miserable existence, painful to itself, distressing to its parents and friends, and irre-

* The writer once met with a case of hydrocephalus congenitus, in which the symptoms of oppressed brain were excited by the child being held by the legs, with the head downwards, to relieve a convulsive affection, by a foolish nurse.

mediable by any known means of art for weeks, months, or even years.*

In cases of convulsions depending on the approach of some infectious disease, such as the small-pox or scarlet fever, it is not always possible to ascertain the exposure of the child to infection, unless the disease has been known to be in the family, or in the neighbourhood, or when the child has been under the circumstances of inoculation.

It is not often that this case of convulsion becomes fatal, because it is soon followed by a spontaneous determination to the skin, by which the blood is uniformly diffused over the whole body, and the circulation through the head proportionably lessened.

If convulsions take place in children at the age when dentition commonly occurs, an examination should be made of the state of

* Many cases are recorded on the best authority, in which the skull has been enlarged to an enormous size, containing many pints of watery fluid.

the gums, and if they are even full, it will be useful to scarify them, but if they appear to be inflamed, the scarification of them should be very freely made, so as not only to take away some blood from the part inflamed, but also to remove the whole tension of the gums and of the membrane which covers the tooth. This membrane, under inflammation, becomes extremely sensible to pain, and being stretched upon the tooth, requires to be entirely set at liberty. — When convulsions occur in dentition, the lenity of the surgeon who omits to destroy the inflamed gum sufficiently with the knife, is ill-judged, and is in effect, the greatest cruelty to the child. — The writer has seen many cases in which convulsions have ceased on scarifying the gums extensively after slight incisions of them had failed to produce any advantage.*

* The late Mr. John Hunter, in his work on the subject of the Teeth, mentions, that he had scarified the gums of a child ten times with manifest advantage each time, and a diminution of the symptoms which had arisen from the advancement of the tooth to the surface.

The bowels should be emptied speedily by glyster, under all circumstances, and by some active purgative administered as speedily as possible, and repeated at short intervals till copious evacuations have been procured. Calomel may be first given, and afterwards infusion of senna with manna and tincture of jalap, in repeated doses adapted to the age of the patient. Hereafter there will be occasion for making some observations on the doses of purgative medicines in children ; — at present it may be sufficient to observe that they require much larger doses of purgative medicines in proportion to their age than adults. It is remarkably the case with respect to this class of medicines ; whilst it is found that they are more powerfully affected by opiates, and by preparations of antimony, so that the writer has known a very small quantity of syrup of poppy *, and a very diluted solu-

* The syrup of poppy of the last London Pharmacopœia is liable to the objection of that in the former, that the dose of preparations made at different times will be very variable, from the different quantity of extract to be found in the decoction from which the syrup is di-

tion of tartrate of antimony, both in a vinous and aqueous medicine, attended with deleterious consequences. The warm bath at the temperature of 92 or 94 degrees of Fahrenheit's scale should be employed, and (if necessary) often repeated. This is very useful, by diffusing the circulation more generally, and especially determining it to the surface of the body.

As there is strong reason, from the circumstances above stated, for believing that in the greater number of cases, where convulsions occur, the head is overloaded with blood, it will be right to take away blood by leeches, by cupping, or by opening the external jugular vein. — On the preference to be given to these respectively, some remarks will be made in a future part of these Commentaries. It does not appear from the experience of the

rected to be made. Nothing would have been so easy as to direct the syrup to be made by dissolving the extract, which would have obviated this objection, and at the same time a temptation to the frequent adulteration of it from the long process of making it.

writer that any inconvenience can arise from taking away blood *: but if it should be neglected, much mischief may ensue, which the loss of blood would prevent. When, by the use of the means above suggested, convulsions have not been relieved, recourse may be had to blistering the lower extremities.

In inflammation of the brain in children, as well as in adults, the application of cold fluids or ice to the scalp, (previously shaved), has been attended with the best effects, and it is a very useful remedy in the case of convulsions. †

* Sydenham seems to have been well aware of the necessity of taking away blood in such cases. “Quo pacto
“ puerorum dentientium convulsionibus, quæ nono de-
“ cimoque mense superveniunt (cum gingivarum intumes-
“ centia, doloreque a quibus comprimuntur nervi, atque
“ irritantur, unde etiam paroxysmi isti nascuntur) sine
“ venæ sectione opem feremus? quæ sola in dicto affectu
“ specifiis quibuscunque decantatissimis, quæ hactenus
“ innotuere, longe est anteferenda.” Sydenh. 199.

† The circumstances which led the writer first to employ it, many years ago, and since that time to recommend the use of it in his lectures, will be explained in the description of the treatment of phrenitis.

It requires the greatest consideration and the exercise of great circumspection, to determine when and in what quantity opium may with propriety be exhibited in convulsions. It may fairly however be laid down as an axiom, that it should never be employed on any account, until it is clearly ascertained that no danger is likely to arise from pressure on the brain — that there is not any existing inflammation of that organ — and never until the bowels have been completely unloaded, lest the stupor arising from a compressed brain, should be imputed to opium; and the time when alone relief could have been given in inflammation of the brain, should be allowed to pass by, never to be recalled.

When the medical attendant has reason to believe that no danger is to be apprehended from any of these circumstances, opium in small doses, cautiously repeated, may be administered with advantage, and it will sometimes diminish pain, by lessening the sensibility and irritability of the patient. Great care must however be taken, during the use of it, to keep the intestinal canal free.

With a view to shortening the duration of an individual paroxysm, there is scarcely any stimulus so powerful as the plentiful affusion of cold water over the face, the body being placed in a horizontal position, with the face upwards. This will frequently cut it short, when all other applications have failed to produce the effect.*

Next to this the effluvia of volatile alkali (ammonia), plentifully inhaled, will, though a common, be found a very useful stimulus. It is most probable, that the advantage of this application arises from its occasioning a full expansion of the chest, and taking off the spasmodic affection of the muscles of inspiration, which occasions the blue color observable in patients during the continuance of a convulsion, a circumstance which depends upon the passage of the blood from the right side of the heart through the

* It is one of the most powerful stimulants known, and they who have not witnessed the effects of this remedy, in hysterical, epileptic, and puerperal convulsions, will find it turn to good account in shortening the fit.

lungs, and so to the left side, being impeded during the spasm of these muscles.

The means above related are all from which the writer has seen any decided advantage to arise. He has had the misfortune not to have witnessed the good effects of other internal antispasmodic medicines, which have been recommended and extolled for the relief of convulsions, (the preparations of ammonia and æther excepted). It does not appear to him that these derive any additional good quality from mixing them with assafoetida, valerian, castor, musk, tinctura fuliginis, amber, and other fetid substances. Practitioners, of considerable experience and authority, have nevertheless recommended and employed them, both in this case and in epilepsy, and it would be presumption to set the experience of an individual against a practice so strongly supported.

The medicines adverted to above seem to agree in no property but that of being offensive to the smell and taste, and it may

be well worth enquiry to ascertain whether the merits of the antispasmodic class of medicines have not been over-rated, and whether they have not continued to be employed rather through a deference to authority than from any decisive proof of their efficacy.

Popular prejudice runs in favour of them, therefore (taking care that they do not disorder the stomach) they may be employed safely, as they have no bad qualities if they possess no virtues beyond that of relieving flatulency, by exciting the contraction of the stomach. Till the point of their efficacy is settled by concurrent testimony, it may be right to use them, if it be only to satisfy the anxiety and solicitude of friends and relatives.

No other compositions should be directed but those which are known. Popular and empirical nostrums, under the specious names of Fit Drops, &c. will always be obtruded on the public (till more attention is paid by the higher orders of practitioners to the complaints of children) by interested

persons ; but it would be disgraceful to a medical man to countenance by his assent, and still more by his approval of the use of such unknown compounds, because his authority will naturally have a great weight in confirming the credulity of those persons, whose anxiety supersedes the use of their reasoning faculties. — A mother in distress will catch at any suggestion of a remedy for her child : but the reason of a medical attendant will often check such a disposition by pointing out more probable modes of relief. *

* The consideration of chronic convulsions in children will be found in the concluding division of these Commentaries, under the head of Epilepsy.

CHAP. VI.

ON PHRENITIS OR INFLAMMATION OF THE
BRAIN IN CHILDREN.

INFLAMMATION of the brain is a far more common disease of children than it has been suspected to be; and numbers who have been supposed to be cut off by idiopathic convulsions, have probably died of inflammation of the brain, of which the convulsive paroxysms were only symptomatic.

Convulsions (as has been observed in a former part of these papers) are rarely, if ever idiopathic, but arise from some other disorder, which produces a powerful effect upon the brain.

Inflammation of the brain occurs in children more frequently than in adults for

various reasons, of which the following are among the most remarkable.

The size of the head in children bears a greater proportion to that of the rest of the body than it afterwards does, consequently more blood flows through its vessels. — A slight cause of inflammation will therefore be likely to produce a greater effect than in parts supplied with less blood.

The greater frequency of eruptive disorders about the face and head of children, ring-worm, scaled or scaly head, inflammation of the tunica conjunctiva, &c. &c. prove the greater determination of blood to the head in early life.

From the time of birth ossification is going on in the head very rapidly, and requires probably a more abundant supply of blood.

Dentition is another process which is early carried on in the jaws, and which is in the course of progress till after all the second set of teeth is completed. — Whilst this

process is going forward, more blood must be carried to the head than is necessary when all the teeth are formed: and it is a fact, the truth of which is easily ascertained by observation, that in families where several children have fallen sacrifices to acute hydrocephalus, (the consequence and natural cure of inflammation of the brain) if a child should survive the age of dentition*, it rarely is afterwards attacked by phrenitis.

Besides the increased circulation in the head from the causes recited, there may also exist some peculiarities of hereditary structure, which act, as predispositions at least, to inflammation of the brain; and its consequences are convulsions and effusion of water between the membranes, or in the cavities of the ventricles.

This opinion derives great weight from a

* “*Morbi infantibus tenellis & pueris quoque proprii*
“ infestant maxime caput.” Hoffm. Med. Nat. Syst.
 Tom. ii. p. 313.

“*Gravissima sæpe periculosa est dentitio in infantibus*
“ —ita ut non pauci febribus aut convulsione super-
“ veniente, moriantur.” Sennert.

well known fact, namely, that it oftentimes happens that several children in the same family have been taken off by this disease. *

Inflammation of the brain does not always commence in the same way.

In some cases the symptoms are very slight at first, and are scarcely observed—the child by almost imperceptible degrees, becomes less lively than it had been accustomed to be ; — it shews often more disposition to be sedentary and quiet than to amuse itself or be amused — it gapes without any accountable cause, and as much in the early part of the day as towards the evening. — It frowns often, knitting the eye-brows strongly, but not constantly. It starts and is disturbed in sleep, and dreams unpleasantly. But

* Very slight circumstances in structure may be continued through several successive generations, and it is most probable that the hereditary character of mania, as well as of inflammation of the brain, may be connected with some peculiarity of structure: it is difficult in any other way satisfactorily to explain hereditary diseased actions, than as depending upon hereditary structure.

these, although symptoms of a formidable disease approaching, are unfortunately, yet generally, disregarded by parents and friends till the accession of violent fever, or a sudden convulsion excites alarm. — The earliest indications of the existence of this disease ought by no means to be neglected, and it is far better that a child should be treated as if the disease actually existed, when perhaps the symptoms may be equivocal, than neglected till they have become very decided, and when remedies are generally applied too late.

In other cases the early symptoms of the disease are violent. — The child is suddenly seized with great heat, thirst, frequency of the pulse, (to 120 or 140 beats in a minute), but regular at the same time. — The pulse is generally hard, full, and strong; and blood drawn from a large vein always has a firm or buffy coat. Whiteness of the tongue, great flushing of the cheeks, and disturbance of sleep likewise take place. — If no other symptoms occur at the time, or if occurring, they are not attended to, the disease is often mistaken for simple fever, and treated as such; and the error

is not detected till a dilated pupil, squinting, or convulsion, demonstrate the effusion of water. — “ cum mala per longas
“ invaluere moras.”

The accession of febrile diseases in children always requires immediate attention. In the early periods of life, simple fever, independently of a local cause, as far as the writer can judge, appears never to occur* ; — but local disorders produce in them violent effects, and the constitution is very prone to be affected by symptoms of general inflammation, or (as it has been called) inflammatory fever.

Peripneumony, inflammation of the brain, indigestible food in the stomach, and many other causes, often bring on very suddenly

* Cases of typhus very rarely are found in children, even though they may have been living in the midst of contagion, and perpetually exposed to the influence of it, but they appear on the contrary very liable to some of those diseases in which eruption exists along with fever ; especially malignant scarlet fever with sore throat, and are frequently destroyed by it ; they should therefore always be, if possible, removed from the sources of this infection.

violent attacks of symptomatic fever in children. The cause should be investigated with all possible attention, as upon the knowledge of it the whole treatment will often depend. This observation is in no case more applicable than to that under consideration. — The symptoms of general febrile affection are common to this and several other diseases: but there are some characteristic symptoms of this which a moderate degree of attention may detect. The irritability of the organs of sense in a very early stage of the disease is greatly increased. The slightest sound will produce starting, both when the child is asleep and awake. — If it sleeps in a wicker cradle, and the finger-nail is drawn quickly along the wicker-work, the child will start, as it would have done in health at the loudest noise. Dropping any thing on the floor, the falling of a poker, or of a chair, excites a great alarm and starting, such as would not happen in any other circumstances. — The sense of feeling becomes very irritable, so that if a child is lying at rest, the slightest touch upon any part of the skin will rouse it with great agitation.

Of the senses of smell and taste the writer has not been able to form any correct judgment, as the disease often occurs before a child can describe its sensations. — Even at a more advanced age it is difficult to fix the attention of a child to niceties of distinction, so that a practitioner must be forced to depend upon his own acuteness of observation for ascertaining what a child cannot be expected to describe.

With regard to the senses of feeling, hearing, and sight, it is less difficult.

In the early stage of inflammation of the brain, vision becomes painfully sensible; the child cannot by any means endure a strong light, without betraying evident marks of distress, such as turning the head away from it, closing the eyelids, wrinkling the forehead, and contracting the eyebrows, so as to lessen the number of rays which would otherwise fall on the retina. It is very common to observe this symptom in the earliest stages of this disorder, before any alteration is discoverable in the eye itself.

The impatience then of light, arising from the increased irritability of the retina, becomes a marked diagnostic symptom of inflammation of the brain, at a very early stage of the disease. The iris, in consequence of this, will be found to contract violently, even in a very moderate light, to such a degree, that it would in some cases be almost impossible to introduce (even if the eye could be kept perfectly steady) a fine needle through the pupil, without incurring the danger of wounding some of the fibres of the iris.

In an early period of the author's practice, he thought that this symptom had not been before observed, as it was not described by modern writers upon the complaint; but upon consulting Aretæus, *περι παραλυσεως*, it appears that he had observed the symptom, and he also describes it as belonging to the early stage of the disease*, and has made a marked distinction between

* “ Τα δε πάχει ἄμφω, τὰ εἶδεα, καὶ ἡ ἐν τοῖσι ὀφθαλμοῖσι Παρθένης καὶ γὰρ ἐκχέεται πολλὸν ἐς μέγεθος ἕυτε Πλατυκορίην ονομαζομεν· ἀτὰρ ἡδὲ ζυνάγετας, ἐσ μικρὸν ἡ Κούρη, εἴτε φθίσιν” ἢν ἡδὲ Μυδρίησιν ἐγὼ κικλήσκω.” Pag. 40.

the state of the pupil of the eye, in the commencement and advanced states of it.*

That the pupils of the eyes are not universally dilated at the commencement of the disease, has been observed by many practical writers, especially Underwood and Armstrong†; but that they are on the contrary more contracted, had escaped the observation of all the ancient writers, except Aretæus, as well as of those who have treated of the disease in modern times.

The tunica conjunctiva of the eyes becomes highly vascular in this disease, and in the second stage, when the eye-lids are

* “ Has patitur ambas species in oculis pupilla; nam
“ diffunditur multum in magnitudinem, quod Platuco-
“ rium (totam pupillam) nominamus. Sed et contrahi-
“ tur in minus spatium pupilla, quod Mydryesem ego
“ appello.”

† “ As to the dilatation of the pupils, I have met with
“ two or three instances, where it was hardly observable
“ till within a few days of the patient’s death.” Arm-
strong, p. 60.

“ The pupils are often not dilated till near the close
“ of the disease.” Underwood, p. 332.

constantly open, this circumstance produces an appearance very distressing to the by-standers.

The quantity of urine secreted is diminished, and gives out a strong smell.

Costiveness does not necessarily attend the early periods of this disease.

The sensible perspiration is generally altogether interrupted, so that the skin feels intensely hot and dry.

The symptoms above enumerated, prove to demonstration the increased irritability of the brain and nervous system through the whole body, not only as affecting the organs of sense, but also the general circulation.

They continue with little or no interruption or abatement, sometimes for several days; occasionally some slight remissions of the febrile symptoms, &c. take place, but they never altogether subside — the pulse constantly remaining very frequent,

and the heat and thirst undergoing little or no diminution. In the first stages of the disorder, if, before the attack, dentition had been going on with considerable salivation, the secretion of saliva considerably diminishes, or ceases altogether.

After a few days, (if in the mean time the occurrence of convulsions should not give a new character to the disease), all the symptoms undergo a very material alteration. — The child loses its increased irritability, and becomes weary and indisposed to any exertion. It frequently yawns and becomes sleepy, so that it is almost impossible to keep it awake by any means. When asleep it is difficultly roused, and would lie, if it were not disturbed, constantly asleep, scarcely awaking to take food.

The heat remains above the natural standard, but not always in the same degree: the exacerbations, on the contrary, are occasional — the face is not so uniformly red, as in the first stage, but the flushing of the cheeks is sometimes very strongly marked, so that they seem as if

they had been painted. The thirst is not so considerable as it was in the early part of the disease, although the mouth remains equally dry and parched. The nostrils rarely secrete any mucus in the whole course of the disease. The senses become more dull — the hearing is less acute, till by degrees the child is perfectly insensible to all except very violent sound, and at length entire deafness ensues. The sense of feeling in like manner loses its excessive irritability, and the sleep will not be disturbed even if the child be roughly handled.

The pulse gradually loses its frequency, beating, however, seldom less than 110 or 120 times in a minute. — As the disease proceeds, the pulse becomes less equable, and is sometimes interrupted — neither is the frequency of it at all times alike, but it will be found most frequent when the cheeks are most flushed. The state of the pupil of the eyes now begins to be altered — as the retina becomes less sensible to light, the iris is more expanded; but in the first instance it often has a vibratory

motion, consisting of alternate contractions and relaxations quickly repeated, especially upon sudden changes in the intensity of light falling upon the eye — afterwards the expanded state of the pupil becomes more permanent, till at length the iris will not contract in the smallest degree, when the strongest light is brought close to the eye ; and the child then becomes altogether blind.

Whilst these changes are going on in the vision, the muscles which direct the eye are also affected. Those which turn the eyes outwards are weakest, therefore lose their power in the greatest degree ; and one or both of the eyes are turned towards the nose, and squinting is the consequence.*

* Squinting, in all cases, is probably owing to some pressure upon the origin of the nerves supplying the muscles of the eyes ; and not as some have imagined, to the two eyes not having the same focus. It does not appear how this should paralyze the retracting muscles, or give an increase of strength to the adductor muscles, either of which is equivalent to the other. — In the evolution of the brain, or the growth of the basis of the

When squinting had taken place in this disease, and the patient has afterwards recovered, the squinting will sometimes disappear. A remarkable instance of this occurred in a patient of Mr. Armstrong, who for some weeks having been affected by strabismus and blindness, recovered from both. A similar case happened in a child who was a patient of Mr. Jennet. In the course of the disease he became quite blind and deaf, but on the removal of the disease, the sight and hearing returned, and the boy is now living, strong and healthy, and in the perfect possession of all the faculties of the mind. — After the child has remained in that state of insensibility and coma for some time, it is either at-

skull, however, some irregularity in the degree of pressure on the nerves may arise, which may affect the muscles to which they belong. — Squinting is certainly, like many other disorganizations, hereditary; and the writer has known instances where children of squinting parents first shewed a disposition to squint at nearly the same age as the parent had done, and this several years after birth, without any symptom of oppressed brain having occurred. In such cases it may be presumed that the pressure is entirely partial.

tacked by a fit of screaming, or by convulsions. In some instances before the access of universal convulsions, partial spasmodic affections occur — the child rolls its head about, or one or both arms are found in a tremulous state, resembling chorea St. Viti, — sometimes both the upper and lower extremity of one side are attacked in this manner, the other side remaining free from twitching.

In some cases the disease does not pursue the regular course already described, but in twenty-four or forty-eight hours after the first attack, a fit of screaming or of convulsion comes on. — After the occurrence of these symptoms, but especially the screaming, whatsoever may have been the previous state of the child with regard to irritability of the system, and particularly of the organs of sense, the irritability becomes perceptibly diminished, and a state of coma, stupor and torpor succeed, and in progression all those symptoms which belong to the second stage of the complaint. An attack of screaming (as if the child were cut or torn) lasts very

often for an hour or more, without any intermission, after which it commonly falls asleep, or at least remains quiet for a long time, and then another similar attack of screaming takes place, succeeded by farther marks of diminished sensibility — the pulse frequent during the paroxysm of screaming, so that it cannot be counted, accompanied with flushing of one or both cheeks becomes more slow, and often very irregular after the termination of it. At length the fits of screaming cease, and convulsions come on with longer or shorter intervals, till the child dies, or until a chronic state of the disease takes place, or till the effect of remedies employed removes the cause producing them. After this time, if the ossification of the head was not compleat before, the edges of the separate bones of the skull will be observed to recede from each other — the fontanelles will become gradually larger, and in some few cases, the membrane of ossification will be raised above the general surface, so as to give the effect of a section of an oval tumor lying under the skin; but it clearly arises from the internal part of the

skull, as the skin is distinctly moveable upon it; and when the child dies, or recovers, the tumor always retires.

A paroxysm of convulsion not unfrequently happens at the very commencement of inflammation of the brain, from which the child recovers; and afterwards symptoms of the first stage of the disease betray themselves. — Screaming, as far as the author's experience has gone, never occurs till after the symptoms of the first stage have decidedly been established; and after a fit of screaming, the symptoms of the first stage invariably decline, and are succeeded by symptoms of the second stage.

Symptoms of the second stage occur more early in those cases, where the sutures and fontanelles are closed, than where the ossification is incomplete. — The cause of this appears to be that the bones are incapable of being separated by the pressure within the skull, and the membrane of ossification incapable of being forced outwards, when the effusion of water begins first to take place.

When the patient is cut off in the first stage of the disease, it is always by convulsions, and this often happens.

Convulsions sometimes are universal, that is, they attack all the parts of the body at the same time, affecting both the voluntary, involuntary, and mixed orders of muscles. — Sometimes the convulsive affections are partial, more particularly attacking one side of the body ; and not uncommonly, when this has been the case, that side becomes permanently paralytic ; and, in many instances, where children have recovered after such partial convulsions of one side, the arm, or leg, or both extremities of that side, remain paralytic during the rest of life : but the flexor muscles sometimes recover a slight degree of power, and being stronger than the extensors, bend the hand downwards, and turn the sole of the foot inwards. — In some, very rare cases, though the original disease was in the brain, the lower extremities have lost their power, whilst the upper have not been at all affected. — Perfect paralysis in these cases sometimes con-

tinues through the rest of life — but now and then a partial power is re-acquired : and if it happens that the limbs should be distorted, some assistance may be derived from the use of machinery, so as to bring the sole instead of the outside of the foot, and outer ankle to the ground.

Though it is contrary to the practice pursued by many mechanics, it appears to the writer to be best to make the support on the inside of the leg, by which means the flexor muscles will be prevented from acting altogether, and this will give a better chance for a more equal antagonization of the two sets of muscles, than if the support is made on the outside, in which case the peronæi will have nothing to do, and (like other inactive muscles) they will lose the little power which they before possessed. — For the same reason no more support should be given than is barely sufficient to produce the effect.

If no means are employed early, the parts will accommodate themselves to their new, unnatural state, and no art can replae

them afterwards, in the greatest number of cases — yet the writer has known an instance where a man, who had been a cripple from his childhood, was enabled, by machinery, to walk with a stick after he had attained the age of puberty. Much will depend upon the exertion of the patient in all such cases, and applying the mind intently to the paralysed limb, by which means the power of action may be sometimes regained, even in cases apparently hopeless.*

The writer has had frequent opportunities of inspecting the heads of patients, who have died of this disease in all its stages.

When they have died, whilst the symptoms of the first stage were present, the vessels of the dura and pia mater were found turgid with blood, and the plexus choroides is generally highly vascular. —

* This idea first occurred to the acute mind of Mr. John Hunter.

The substance of the brain has not appeared to be decidedly altered, and there have not been any clear evidences of inflammation either of the substance of the cerebrum or cerebellum. The parts lying on the basis of the skull generally exhibit strong marks of inflammation. — The writer has seen the optic nerves entirely embedded in a sheath of coagulating lymph, extending backwards to the thalami nervorum opticorum, and to the medulla oblongata, from which it has been easy to detach considerable portions of laminated coagulating lymph. — In the ventricles there has generally been rather a larger proportion of water than is found in a healthy state. —

When the head has been inspected after symptoms of the second stage of the disease have appeared, especially where the pupil of the eye has been dilated, and where there have been fits of screaming, superadded to the appearances above described, there will always be found a considerable quantity of water effused between the tunica arachnoides and the pia mater,

or in the ventricles, or in both these situations.

It does not appear that the violence of the symptoms of the disease has always been commensurate with the derangement of structure found on inspecting the head after death, since in some cases, where the symptoms have been very severe, the appearances of disease have been slight; and on the contrary, the alteration of structure been great, where the preceding disease has not been attended by very violent symptoms. — This may depend on the brain and nerves being in some individuals capable of bearing very different degrees of injury, or being endowed with very different degrees of irritability.

In the second stage of the disease the peristaltic motion is affected by the same torpor which acts on other parts of the body, and the patient becomes obstinately costive.

From what has been above stated, symptoms, which characterize the different stages

of the disease, may probably admit of explanation. In the most early stages, when there is a trifling addition to the quantity of blood circulating through the brain, the irritability of that organ and of the nerves connected with it, becomes increased ; and hence arises the increased excitement of the touch, vision, and hearing. — The increased energy of the brain increases the action of the heart and arteries, so that the pulse becomes frequent, hard, and strong.

The external and internal carotid arteries come from the aorta, by a trunk common to both, so that if, from any cause, blood flows in greater quantity to the head, both the internal and external vessels of it will become more turgid.

When the interior of the skull is very much loaded with blood, the scalp becomes, in many cases, very red, in consequence of the communication which subsists between the vessels of the dura mater and the pericranium by anastomosis through the skull, and between the pericranium and the scalp.

This circumstance in the circulation through the head, accounts for convulsions occurring in dentition, when it proceeds with strong inflammatory symptoms, by reason of the blood coming from the heart by a common trunk to the gums and to the brain, and increased pressure being thereby made upon the brain, from fulness of blood in the cavities of the vessels, and not by extravasation of blood, or of water. To this it may be objected, that when persons recover from such convulsions, it cannot be known that there might not have been some extravasation of blood or water, or both. — But this is not at all reconcileable with the state of knowledge respecting the rate of absorption. — It sometimes happens that a single paroxysm takes place, and continues for a short time only, and that the child recovers the use of all its faculties in an hour or two. — This would be altogether unaccountable upon any known law of absorption, but is quite reconcileable with the effects of temporary pressure.*

* The writer has often seen women in puerperal convulsions first attacked with pain in the head — this has

The appearances observable on inspecting the heads of such as have died in the second stage of the disease coincide with the symptoms during life, and are such as would be attended with the usual effects of pressure. — The screaming fits probably take place with the first effusion of water between the membranes, or in the ventricles of the brain. — Between the unyielding skull and the incompressible fluid, the substance of the brain, and the origin of all the nerves connected with it, are violently compressed, as if in a vice, till the veins carry off some of the blood, by which the brain is set at liberty, in some measure, and the pain is lessened. — A farther effusion produces a repetition of similar symptoms, till at length the brain perhaps becomes insensible to farther pressure from the encreas-

become more and more violent till it has ended in total blindness — then convulsions, with loss of the powers of the mind, have succeeded. — Blood has been plentifully taken away, the head has been raised and kept cold, and the patient purged copiously, and delivered. — The convulsions have immediately ceased: the sight has returned, and the mind has become strong again in the course of a few hours — If extravasation had taken place, this could not have happened so speedily.

ing effusion, and the patient sometimes lies in a torpid state till it dies; but it is more commonly cut off by a succession of convulsions.

The predisposition to this disorder is to be found partly in original structure, which may perhaps consist in a greater capaciousness of the blood-vessels, together with laxity of their coats, a circumstance likely to happen in scrophulous subjects. — It is, (as far as the writer can judge) certain that the children of scrophulous parents, (all other things being equal) are most liable to the disease. — It occurs more frequently in those which have a fair skin, with a pink complexion, than to such as are dark and not very florid. — Whether the explanation offered above be sufficient to account for the fact or not, or whether there may be other alterations of structure, which have not yet been, but may be hereafter detected, it is equally certain, if his experience may be trusted, that the disease has also its predisposition in hereditary structure.

It cannot be repeated too often, that

it is of great importance in practice not to lose sight of the circumstance, that one child of a family had previously died of convulsions attended by fever.

By attending to this, if another should be attacked by febrile symptoms, without any apparent cause, by narrowly watching the symptoms, the first indications of disordered brain may be detected, and proper remedies applied before it is too late to administer relief.

Another predisposition is derived from the practice, (as has been observed above) of keeping the heads of young children unnaturally warm, by which circumstance an increased flow of blood is invited to the head, and constantly kept up, even before dentition goes on rapidly. Dentition, under the best circumstances, is also a predisposition to inflammation of the brain.

The occasional causes of inflammation of the brain (independently of local violence) are the same as act upon other internal parts, but especially sudden changes

of temperature, from heat to cold, acting with more certainty on those children, who are predisposed to the disease, for the reasons already assigned.

It is very difficult to explain satisfactorily the manner in which active dentition becomes an occasional cause, merely by producing fulness of the vessels — or indigestible food in the stomach exciting local plethora of the head ; yet there is the strongest reason in practice and experience for believing the fact to be so — since in both instances inflammation of the brain has taken place, where it could be traced to no other cause, and where one or the other of these was present.

However it must be allowed that there may be some unknown predisposition of the brain to inflammation, in which mere fulness of the vessels, with strong action of the heart, may be sufficient to produce the effect. — Indigestible substances taken as food, especially oysters and mushrooms, have frequently been known to bring

on apoplexy and inflammation of the brain.*

The sudden healing of ulcers, or cutaneous eruptions about the head, or the stopping of discharges behind the ears, or the cure of the simple, or infectious ophthalmy in children, without attending at the same time to a diminution of nourishment, to keeping the bowels in a very open state, to applying a seton, or making an issue at the back of the neck, or blistering the lower extremities, very frequently become immediate causes of inflammation of the brain.

Great attention is required in practice to these circumstances, especially when such diseases have been of long standing. It is in many cases also well worthy of consi-

* See a paper in the 5th volume of the Medical Transactions by the writer of these Commentaries.

Hogarth, a very accurate observer of manners in his series of paintings of an election, has exhibited the successful candidate dying at a dinner with a plate of oysters before him.

deration, whether it is not better, in slight cases, to allow such complaints to continue, rather than to incur the risk, by curing them, of a worse state of things.

The manner in which the healing of such cutaneous disorders, or of ophthalmy acts, is probably this — blood had been derived to the head very copiously in order to support the inflammation or supply the materials for such discharges. — The inflammation and discharge are suddenly stopped. The heart, from habit, continues to supply the head with a redundant quantity of blood, which being diverted from its former course, goes to the interior of the head by the internal carotid artery, and produces inflammation there, just as cold or any other cause which tends to fill the internal vessels of the body, acts in producing pleurisy, or peripneumony.

It is not at all understood in what manner cold applied to the surface of the body acts so as to excite internal inflammation.

— It is quite clear that the mere fulness of vessels will not in all cases explain it, because in the winters of cold climates, in many employments in temperate climates — in cases of long immersion of the body in cold water, as in swimming, though the flow is sudden and long kept up, yet internal inflammation does not generally take place. — The fact is well known, that inflammation sometimes is so produced, though the explanation generally given is not satisfactory.

Inflammation of the brain is in all cases, and in all stages of it, a very formidable disease, and in by far the majority of instances proves fatal ; insomuch that there have not been wanting practitioners, who maintain that it seldom (if ever) in the first, and never in the second stage, admits of cure. — Dismissing at present the consideration of the truth or error of such opinions, the existence of them is sufficient to establish the fact of the extremely dangerous nature of the disorder. — It becomes also a strong reason for making an unfa-

avorable prognostic. — Yet, as the writer means to contend, that often in the first stage, if early treated, and sometimes even in the second stage, the disease admits of remedy, the prognostic should not be too gloomy, lest all exertion on the part of the bye-standers should be checked, and the child left to die unassisted.

The general fatality of cases of hydrocephalus is so well known, and it being the opinion of many medical men that the cure of it is impossible, it becomes extremely difficult to counteract the effect of these opinions on the minds of parents: and it is to be feared, that the death of many children has been more owing to the want of exertion, than to the incurable character of the disease itself.

The writer feels justified in maintaining confidently this doctrine, from having seen many unequivocal cases of the disorder relieved. He is well aware of the hazard of advancing this opinion in opposition to

the incredulity and scepticism of many wise and good practitioners, and of some for whom he entertains a high respect ; but he knows assuredly, that future experience will bear him out in the assertion, and is not therefore afraid of the present consequences of promulgating it. Recent cases are of course more susceptible of cure than those of longer standing, and the first stage much more so than the second. When symptoms of the second stage have taken place without screaming, the danger appears to be less, and the chance of relief by the use of remedies greater ; at least, this has appeared to be the case in the course of the writer's own experience.

The treatment of this inflammation has not been so successful as that of most other internal inflammations, both because generally the practitioner is often not consulted until so much mischief has been done to an organ, whose structure and functions are essential to life, as to be irremediable ; and also because the diagnostic symptoms are frequently overlooked by superficial observers,

and by persons not conversant with the diseases of children. — The disease is often mistaken for common fever, for fever preceding some eruptive disorder, especially the measles (owing to the impatience of light which accompanies both diseases); for common head-ache in children who are capable of speaking and describing the seat of their pain; for the fever attending a disordered state of the stomach and bowels, or dentition: — These mistakes, by producing procrastination, and postponing the use of proper remedies for the disease, frequently occasion a fatal termination of it. Yet if the diagnostic symptoms are attended to, — if the history of the case is accurately investigated, and all the facts taken into consideration, this disease, in its first stage, will, if early treated, yield to the remedies employed, like other internal inflammations: and so its consequence (hydrocephalus internus) may be prevented.

Inflammation of the brain, when it has been produced by external violence, frequently gives way to the remedies em-

ployed to relieve it, and surgeons do not despair of curing it by such means : — and no good reason seems to be assignable why inflammation of the same organ, when produced by one cause, should be more intractable than when occasioned by another.

Of all the known remedies for the cure of phlegmonous inflammations, bleeding is by far the most powerful. The effect of this remedy is greatest when a quantity of blood is taken in a short time by a large orifice made into a large vessel. — Sixteen ounces of blood so taken away from an adult, especially if followed by fainting, will be more efficacious in subduing pleurisy, peripneumony, or enterites, than twenty or more taken from a small orifice in a longer time, and not followed by fainting.

The same practice is applicable to inflammation of the brain ; but when it occurs in very young children, a large vessel often cannot be found. — In such circumstances the use of cupping glasses, with

scarification, must be substituted, or the application of leeches.

In the choice between the two, the writer gives a decided preference to the operation of cupping. Leeches often are difficultly procured, and since the improvements made in agriculture, by draining the fen-lands, they have become very scarce as well as expensive. They often, moreover, will not fasten, and when they do, the quantity of blood taken away by them is very uncertain. Sometimes the orifices will scarcely bleed at all; at other times the bleeding can scarcely be restrained. No wise practitioner would trust to so doubtful a remedy in a pleurisy—then why in inflammation of the brain, a disease at least as formidable, certainly not less fatal?

It may be replied, that parents and friends are not so alarmed at leeches as at cupping; with such considerations medical science has nothing to do; there should be no compromise in cases of health and life; and he ill consults the value of his own profes-

sional character, but, above all, the approval of his own mind, who commutes the safety of the patient, (to acquire a short-lived popularity), for the character of compliance with the wishes and fears of parents, however natural. When the present danger has ceased, and the cool exercise of their understandings returns, they will have very different feelings, and will have lost all their confidence in the skill of one who submitted to be controuled by those, whom he should himself have directed.*

* It is not intended in this place to recommend to young practitioners an unbending obstinacy of character and conduct — they should labour to acquire good principles of practice by oral instruction and unwearied study — they should observe and endeavour to profit by the experience of the physicians and surgeons of hospitals, and make them the rules of their conduct, till they have acquired sufficient experience themselves, to enable them to correct the errors of their teachers and predecessors. A sturdy, unyielding pertinaciousness, is most indecent in a young (or indeed in any) practitioner, in consultation. Age and experience must often be sensible of the difficulties attending the practice of a science, in which there must be much of conjecture, and is little of certainty; and it is too much to conceive that these difficulties can be overleaped by a quick and lively imagination, with little study and less experience.

In London, and some other large towns, there are persons who exclusively practise cupping, and who, from habit, have acquired great dexterity in performing that operation.

Many medical men practising surgery and pharmacy, particularly in the country, from not having been taught the manner of doing it, are frequently foiled in their attempts to take away a determinate quantity of blood by cupping, and so give it up in despair. If, however, this be a necessary operation, the art of doing it should be acquired; and, in the course of the life of any medical man, in general practice, it is much more important that he should be able to cup and scarify well and effectually, than that he should understand the best mode of applying a trephine, or performing the operation for a strangulated hernia, or aneurism.

But it is too common for students to flock to an operation, (which they will themselves most probably never have occasion to perform), attended with great difficulty and

danger, and requiring the greatest anatomical skill, to the neglect of those things which occur in daily practice, and which are, therefore of more importance to be well understood by them.*

In recommending the loss of blood, it must be never overlooked that upon the promptness and efficacy of this remedy every thing depends. — Very young children bear very well the loss of blood, even to fainting, once or twice, but they ill bear a more frequent repetition of bleeding. — Their powers sink under it, and by no art can be replaced. — From a child of seven or eight months old, two ounces and a half of blood may be taken, and one and an half or two more in sixteen hours afterwards. Three ounces may be taken from

* A small Treatise upon the operation of Cupping, has been lately published by Mr. Mapleson, a cupper in London, in which some plain directions have been distinctly laid down, for performing this useful operation; these, if attended to, will enable persons, who have heretofore found great difficulty in performing it effectually, to succeed in doing it hereafter. Vide Treatise on the Art of Cupping, by Thomas Mapleson. 1813.

a child of a year old, and two and a half or three afterwards, if the symptoms do not yield: at this age two more may be taken in twelve hours after the second bleeding, if it should be necessary, and the patient has not been too much weakened already. Cupping may be performed on the scalp, or behind the ears, or the nape of the neck, or high up on the spine, or between the shoulders.*

When a child has attained the age of a year, and at any succeeding period of its life, unless in fat subjects, the external jugular veins may often be sufficiently large and superficial to admit of blood letting from them. As the child becomes older, the veins of the arms become prominent enough to be opened. Unless the writer has grossly deceived himself in the comparison of cases apparently similar; a decided preference is to be given to taking away blood

* A surgeon should be provided with scarificators with four, six, and eight blades, and with exhausting glasses corresponding to them, to enable him to perform the operation upon small and projecting surfaces.

from the external jugular vein. He is unwilling to confound a practical fact with a pathological discussion, yet it will not be altogether irrelevant to observe, that the principle of the superiority of one to the other is reconcileable in his estimation with the practical result.

The blood which supplies the external and internal parts of the head, is furnished from the aorta by a common trunk on each side, separating into the external and internal carotid arteries (not to mention the vertebral comparatively small arteries). The greater part of the blood supplied by the internal carotid artery, after circulating through the brain and its membranes, passes from the veins of the pia mater into the sinuses of the dura mater, which terminate in the trunk of the internal jugular vein, passing out of the skull through the foramen lacerum in base cranii.

The external carotid artery by its branches supplies the exterior of the head, anastomosing sometimes with the branches of the internal carotid artery, especially

through the skull ; together with the arteries of the dura mater, which anastomose with those of the pericranium ; corresponding veins keep up a similar communication.*

The branches of the external carotid artery empty themselves into corresponding ramifications of the external jugular vein, and at length unite in a large trunk on each side, which forms a conflux with the internal jugular vein before it enters the vena cava superior, to be emptied into the heart.

There are in the circulation through the brain some peculiarities materially tending to detain the blood there. These become a clear elucidation of a well known fact in the observation of every practical man — that, when from any cause a local plethora of the vessels of the head has been produced, it is longer before it admits of remedy, and only by great perseverance both of the patient and practitioner, than a simi-

* Vide Sir E. Home's paper, cited already.

lar accumulation of blood in other parts, even though assisted by the operation of gravitation. The peculiarities alluded to are the structure of the sinuses, and the manner in which the blood by the external and internal jugular veins enters the vena cava superior.

The dura mater is an inelastic membrane, and possesses no known muscularity: the sinuses of the brain are formed by duplicatures of this membrane, containing (for the sake of admitting the fact in argument,) the ordinary structure of a contractile vein, closely connected however, by its coats, with the dura mater, in which it is inclosed. Not to mention that the unyielding structure of the dura mater will oppose the entrance of the blood into the sinuses, it must be admitted that it will be with more difficulty propelled from them, and congestion in the vessels of the brain itself, and of the pia and dura mater will be more likely to happen than in other parts, which have a dissimilar organization. — If such accumulation should have taken place, the structure of the sinuses above stated will prove

a powerful impediment to the removal of it ; — because the inelastic character of the dura mater prevents it from contracting, whilst the venous coat is very closely connected with it and cannot contract ; or, if at all, very slowly, so that the diminution of the quantity of blood in the head must depend principally on the contraction of the vessels of the pia mater. The other peculiarity consists in the conflux of the two trunks of the external and internal jugular veins before the vena cava terminates in the right auricle of the heart. The opposing streams must impede each other, and the effect will be to detain the blood in the head.

Under the circumstances of this structure, if blood be taken from the trunk of the external jugular vein, besides the advantage of the absolute loss of blood, the emptying of the sinuses by allowing the blood to flow through the internal jugular vein, though for a short time only, unopposed by the stream of one of the external jugular veins, must be attended with some (however small) benefit.

It may be objected, that the carotid arteries will soon supply the blood again, and that as soon as the operation is over, the external jugular vein will again oppose the stream in the internal jugular vein. — But it is to be remembered, that there will be less blood in the circulation than before, and the ulterior treatment will still farther diminish it.

In a case of puerperal convulsions, where Dr. Denman and the late Dr. Reynolds were together in consultation, it was agreed that large bleeding should be employed, and they proposed that the blood should be taken from the external jugular vein. — It was directly assented to, and after the operation, the patient had no more convulsions (though they had occurred frequently before), recovered perfectly, and is now alive.

Whether these reasons be sufficient or not, to account for the greater benefit arising from bleeding in the external jugular vein, the writer has no difficulty in stating the practical fact, as being strongly upheld by his own experience, and con-

firmed by the opinion of patients, whose age and power of judging of the comparative effects of bleeding from the external jugular vein, or a vein in the arm in cases of fulness of the vessels of the head, makes their evidence too conclusive to admit of cavil or objection.*

Children who have attained the age of four years, and *à fortiori*, those who are older will bear to have blood letting, if necessary, frequently repeated, from a vein, or by cupping, or leeches.

Some attentions, by the practitioner, are necessary in opening the jugular vein, for want of which failures oftentimes occur.

It is best to make an incision in the first instance through the skin, longer than the intended orifice in the vein, so as to expose the vein distinctly, and then to make an incision into the vein itself — by this means a thrombus will be avoided — it will be

* This is not the place to enter into the large question of topical bleedings, where there exists anastomosis of vessels. — This has long been set at rest.

easy to keep the orifice in the skin, opposite to the orifice in the vein, so that the blood will flow freely. — Without these precautions, the vein is very apt to roll, in consequence of its loose attachment to the skin and muscles — and the incision does not enter it, or a small orifice only is made into the vein — the blood, not flowing readily through the skin, finds a course into the cellular membrane, where it at length coagulates, and the bleeding ceases without any relief having been obtained.

If, however, the jugular vein cannot be opened on account of fatness of the neck, or from any other cause, then blood should be taken from a large vessel in the arm. If neither can be done, then recourse must be had to cupping.

The rectum should be immediately cleared by a glyster, composed of infusion of senna and salts — or made by dissolving soft soap in water.

The stomach and intestinal canal should be forthwith emptied by giving a large dose of calomel, and in two hours afterwards a

purgative, consisting of a solution of sulphate of magnesia or some other saline purgative, in infusion of senna with manna. The dose should be repeated every two or three hours, untill plentiful evacuations have been procured. — The use of saline purgatives is particularly insisted upon, because they occasion a large watery secretion from the bowels, and in this manner co-operate with the operation of bleeding in reducing the quantity of circulating blood, and so diminishing the pressure on the head directly, besides their indirect effect in causing a revulsion from the head to a distant part of the body. — Care should be taken to procure afterwards two or three watery evacuations from the intestines every day. — In the intermediate time, between the exhibition of purgatives, ipecacuanha or antimony, exhibited every four hours in such doses, as to diffuse the circulation over the whole body, and especially (if it be possible) to produce a state of perspiration, will be found eminently useful. — The best form of giving antimony, in most cases, is that invented and recommended by the late Dr. George Fordyce, and by

him called *vinum antimonii tartarisati*, and adopted in the *London Pharmacopæia* of 1788, under that name. *

The erect posture should be observed as much as possible through this disease, that the effects of gravitation may, as far as it is possible, counteract the diseased flow of blood to the head.

A child who was seen by Dr. Baillie and the writer, several years ago, in this disease, was kept in the erect posture in a chair for some weeks, and then recovered.

* In the last edition of the *London Pharmacopæia*, it is called *Liquor Antimonii Tartarisati*, and the proportion of the tartrate of antimony is also changed. — Neither of these alterations seemed to be required; and the adoption of them has a tendency to create unnecessary confusion.

The observations lately made on the alkalies by Sir Humphrey Davy, and other modern chemists, will, if this practice is persevered in, make new changes necessary. If the terms of art must change with every improvement of chemical science, the result of the whole must be, that the works of all the preceding ages must in time become, to a great degree, unintelligible to their successors.

When very young children are the subjects of this disorder, their heads should be kept very much raised during the day — and they should have their heads, when in bed, as near to the perpendicular position as possible, upon pillows stuffed with horse-hair or chaff, to avoid the warmth of feathers or down.

It has been very much the practice, in cases of inflammation of the brain, to apply blisters to the shaved scalp; and in the early part of his professional life, the writer pursued the same treatment, but without being sensible of advantage having been in any case obtained from it.

Reflecting upon the ill success of this remedy, which is found so very useful, when applied to the skin on the outside of the chest, in cases of peripneumony, and to the skin, on the outside of the abdomen, as a remedy for inflammation of the liver, spleen, or any of the abdominal viscera; it occurred to him that these cases are, with reference to the

application of a blister, very dissimilar from that of inflammation of the brain ; and of course similar effects will not be the result of such an application of a blister.

Few parts of the body, though apparently near, are in reality much more distant, (so far as the connexion by blood vessels, absorbents, and nerves is concerned,) than the pleura covering the lungs, or the substance itself of the lungs, and the skin on the external surface of the chest. A blister applied to the skin in those inflammations, acts most probably by exciting an increased action and inflammation in a distant part of the body, between which and the diseased part, (saving the case of adhesions of the pleura costalis and pulmonalis) there is no real connexion.

The same observation applies to inflammation of the liver, spleen, stomach, small and great intestines, &c.

The case is very different when blisters are applied to the scalp in inflammation of

the brain. — A new inflammation is excited on a surface, supplied from the same general trunk (proceeding from the aorta) as the brain itself. — If an increased flow of blood is produced by the blister, it can only be by a larger supply from the aorta, through the common trunk of the two carotid arteries, which will of course equally supply the diseased inflammation within, and that excited by the blister outwardly. The anastomosing branches of the two carotid arteries will reciprocally feed each other through the bones of the skull. The first or immediate effect then of a blister applied to the scalp is to increase the determination to the head by derivation of the blood thither, whereas, in all other instances, whether of those cited already, or any other, as in inflammation of a deep-seated joint, &c. the benefit derived is by revulsion, that is, by exciting an inflammation in a part of the body, unconnected, especially by blood vessels, with the part diseased. — The expectation of the practitioner in such cases is, that the second inflammation, artificially raised, will supersede the first or diseased inflammation.

The universal failure, in his own practice, of those cases where blisters had been applied to the scalp*, induced the writer, in a case to which he was called in consultation many years ago with Mr. Wilson the surgeon and anatomist, and Mr. Ridout, to propose, together with other remedies, the application of large blisters to the outside of the legs. This child recovered, and he has since that time often employed the same remedy, in the same way, and with decidedly better effects than he experienced from blisters applied to the scalp. He prefers blistering between the shoulders to blistering the scalp, both because the same vessels do not supply both parts, and because any anastomosis must be too trifling to deserve consideration. When blisters are employed, after vesication, the cuticle should be removed, and the discharge from the surface kept up by ceratum sabinæ, or some other stimulating application, which will prevent the form-

* It is here only intended to consider the primary effects of blistering the skin.

ation of a new cuticle. — The savin appears to answer best of any, and is not liable to the objection of producing strangury, as is the case in the repeated application of cantharides. When blisters are applied to the upper part of the back, cataplasms, so as to act as rubefacients, may be applied also to the lower extremities, which in all cases of inflamed brain should be made very warm by additional clothing. Besides these remedies already referred to, there is another from which great benefit may be derived — namely, the application of cold to the head.

After waiting a long time for an opportunity of trying this in some desperate case, where there would be no particular responsibility, (and where, if it did no good, it could do no harm), an occasion offered itself, in which it was tried on a poor man, who had been gratuitously and humanely attended, under very severe circumstances of inflammation of the brain, by Mr. De Bruyn, who had treated the patient in a very judicious manner, before the writer was con-

sulted. — The disease had existed for several days — he had been bled freely, purged, blistered, and every attention had been paid to his diet ; but the symptoms increased in severity, and the man became perfectly frantic, and raved perpetually, having been seized with delirium soon after the attack. A worse state of things could scarcely exist, nor any thing expected but a fatal termination of the disease.

It was determined to apply cold constantly to the bare scalp. — In the course of a few hours, after the use of the remedy, he recovered his reason, and was able to give an account of the manner of the attack, and of every thing which happened before the time when he became delirious. In this way he continued for several hours, but in the afternoon he relapsed into a frantic state, and expired in the night. On inspecting the brain a few hours after death, there were found strong marks of inflammation, especially of that part of it which lay upon the basis of the skull. Between the medulla oblongata and the bone, there

was a firm lamina of coagulated lymph, as thick as chamois leather.

Shortly after this case, another presented itself, which fell under the joint care of Dr. Reynolds and the writer. The subject of it was a man about thirty years of age. He was robust, healthy, and of a florid complexion. — His situation in life led him into habits of full living, both as to eating and drinking, but he was free from disease of any kind. In returning from a long walk he was seized, within 200 yards of his own house, with a sudden and very violent giddiness, and excruciating pain in the head. He immediately, upon recovering from the giddiness, went to his medical attendant, Mr. Humby, who directly took away a considerable quantity of blood from a large vein, and then removed him to his home. — He lost blood again the same day, (the pain in the head having increased), and was freely purged. The general plan of lowering him, both by bleeding, purging medicines, and diet, was continued very judiciously, and his back was blistered.

After this the writer saw him with Dr. Reynolds, to whom the circumstances of the former case were related; and he agreed that it would be advisable to try the application of iced water to the head, as all the common remedies had failed, and the patient suffered violent paroxysms of acute pain. It was therefore determined, that it should be applied on the accession of every paroxysm of pain, and that he should be kept constantly in an erect posture. The effect in reducing the violence of the paroxysms was instantaneous, and as often as cold was applied, it mitigated the severity of the pain, and gave him temporary comfort. The paroxysms, however, returned very frequently, notwithstanding, and about four in the afternoon, on one day, he was seized with a more violent accession of pain than usual, which was followed by a convulsion, and in less than half an hour he was dead, having lived more than a week from the attack. During this time he was well aware of the hazard of his own situation, and, as he was perfectly rational, he settled all his affairs.

The contents of the head were inspected soon after death. The vessels of the brain were very turgid with blood, especially on the right side, towards the middle and lateral part of that hemisphere of the cerebrum. The substance of the brain was carefully cut away from above; and nearly in the centre of the right hemisphere was found a cavity, containing more than two ounces of a mixture of grumous blood and pus.

The inference to be drawn from these two cases appeared to be, that even under circumstances of the most desperate kind — in the first, where from inflammation of long standing, coagulating lymph had been effused, so as to form a solid lamina, and where delirium had attended the disease through its whole course; in the second, where in the first instance a large quantity of blood had been extravasated, and afterwards inflammation had succeeded, and pus had been formed, great relief was obtained by the cold applications: in one the delirium ceased, and the patient became sensible; in the other the patient lived

many days, and great diminution of pain was effected by it. As in both the disease was evidently incurable, more could not be expected; but they furnished data upon which to ground reasonable expectations of advantage, from the application of cold, in cases of injury to the brain, or inflammation of a curable description.

The principle on which the application of cold was proposed, and the manner of its agency may perhaps be thus explained.

The head being kept very high and cold, less blood will be carried to it by the carotid arteries; at any rate less will circulate through the external carotid arteries; the external jugular veins will necessarily contain a smaller quantity, and their stream will not oppose, in the same degree, that which enters the superior vena cava by the internal jugular veins. The sinuses of the dura mater will by this means enjoy a more free discharge of the blood contained in them, and that by the veins of the pia mater, a more ready admission into the sinuses.

Whether the principle be right or wrong, the writer is certain of the practical advantage of the application of cold, having used it in multiplied instances since that time, both in cases of fullness of the vessels of the brain, in cases of puerperal convulsions, in inflammation of the brain, and in epilepsy. When it has been employed in children, of an age to be sensible of the effects of it; or in adults, they have always desired to have it often repeated, from finding the advantage and comfort of it. The child whose case has been referred to above, who was also seen by Dr. Baillie, was perpetually calling for it, to mitigate her pain. When ice or snow cannot conveniently be procured, a mixture of spirit, ether, and water, immersed in a cold medium, is a very good substitute, and cloths wetted with it may be applied constantly.

The advantage arising from it, does not rest upon his own experience only, but on that of various medical practitioners, who have, on his recommendation, of late years had recourse to it. It is applicable not only to this case of inflammation of the

brain, but to all cases in which it is desirable to diminish the flow of blood to the brain.

Tepid bathing is useful as an auxiliary remedy in this disease, by diffusing the circulation, but it requires great care that the surface of the body be not exposed to cold upon coming out of the water. With this precaution it may be used twice in twenty-four hours, and continued for an hour at each time.

The diet, through the whole course of the first stage of inflammation of the brain, should be barely sufficient to sustain life, and only so much pure liquid taken as is sufficient to slake excessive thirst, because when mischief is to be apprehended from pressure on the brain, watery fluids will effect it as certainly as blood, though they may not equally support inflammation.

From the examination of the heads of those who have died after the occurrence of screaming, dilated pupils, squinting, deafness, and insensibility, together with a

diminution of the uniform frequency of the pulse, and of the regular and constant heat of the body (with however occasional flushing of the cheek) and convulsions, or a concurrence of several of these symptoms, it appears that water is generally effused, either into the cavities of the ventricles, or between the membranes of the brain, or in both these situations.

This is the natural cure of the inflammation, and is common to this disease, with the inflammation of many other circumscribed cavities, as the pericardium, thorax, abdomen, tunica vaginalis, &c.

In some of these cavities considerable quantities of water may be accumulated without much inconvenience, especially in the ovarium and tunica vaginalis, because in the last it interferes with no necessary function of life, and only becomes inconvenient on account of the bulk occasioned by it. — Even in ascites, the functions of the viscera will often proceed tolerably, notwithstanding the presence of water, and in both, when the effusion of water has been

owing to preceding inflammation, it is not unusual to observe, that it will be entirely absorbed. Hydrothorax and hydrops pericardii (though the fluid effused even in these cases is sometimes absorbed), become very distressing to the patient, and even fatal, because the presence of water interferes with the free action of the heart in both cases, and in hydrothorax it diminishes also the capaciousness of the air vessels of the lungs and of the blood-vessels, by occupying a part of the cavity of the thorax, which by reason of its bony parietes cannot be distended like the cavity of the abdomen, or that of the tunica vaginalis.

Water effused in the cavities, or on the surface of the brain, has the effect of interfering with most of the necessary functions of life, by the pressure which is made upon the brain, and of those nerves which derive their origin from the brain.

The bony structure of the skull, like that of the thorax, increases the bad effects of the pressure, and in a still greater degree,

because the thorax at its lower part does admit of some enlargement, by pressing down the diaphragm, whereas the skull presses on all sides equally; and a very small quantity of water in its cavity, produces more violent effects on that account than a large quantity in other parts.

Where the ossification has not become complete, the symptoms of the presence of water are more mild at first, and are longer before they exhibit themselves than when the head is completely ossified. In some instances, as has been observed above, a distinct tumor will be formed at the anterior fontanelle, communicating with the interior of the head. — These cases are most favorable to the application of remedies.

When several of the symptoms of the second stage, as deafness, dilated pupils, squinting, but especially screaming, have succeeded those of the first stage of the disease, it may be presumed that water has been effused; and this is confirmed by the

inspection of the parts after death, as has been above stated.

The treatment applicable to an inflamed state of the brain must now be discontinued; and as other objects present themselves, other measures must be resorted to. The evil existing is the presence of water in the cavity of the skull — the evil to be dreaded is the farther effusion of it. — The means to be employed are therefore to be directed to the absorption of that already thrown out, and the prevention of farther effusion.

It is very difficult to produce the absorption of water already effused into the brain, even though it may be combined with no other alteration of structure than that which is the necessary consequence of the pressure of it. — Medicines of the diuretic class are always very uncertain in their operation on the human body; and they appear to have less efficacy in this than in any other case. — Neutral salts, squill, elaterium in very small doses, and digitalis, have, on

trial, not been attended with any clear and decided advantage : nevertheless, squill may be employed conjointly with other remedies whose agency can be more depended upon.

With respect to elaterium and digitalis, these are medicines which sometimes produce such violent effects, even when exhibited in very small doses, that they can hardly be employed in children without hazard.

Mercury appears to be the only medicine, which has been successful in the cure of acute hydrocephalus, and with this view it may be used both externally and internally in very considerable quantities.

This remedy has been of late years much in use* ; but the writer is inclined to believe, that, from the doses being estimated

* Dr. Dobson, some years ago, brought this subject of the use of mercury in hydrocephalus before the public, and it certainly has been much more employed, and its efficacy better understood, since that time.

as bearing some proportion to those which can be employed in adults, it has been less useful than it might have been. To assert that mercury has any specific effect in acute hydrocephalus, might excite cavil, and form a good subject for a controversy; but it is not too much to observe, that its effects in relieving this disorder are not to be explained by any principle, or any analogy to its effects in other cases of accumulation of water in circumscribed cavities. It is not in proof that mercury rubbed on the thighs or back, has proved a cure for dropsy of the pericardium, thorax, abdomen, tunica vaginalis, or even a collection of redundant fluid in a joint; yet it is on record, and the writer has had various opportunities of witnessing its pre-eminently good effects in hydrocephalus, succeeding to inflammation of the brain. If it were produced by any common agency on the absorbent system, it would not be less effectual in relieving other dropsical collections. It does not appear to depend on its encreasing the secretions of the body in children; because neither the quantity of urine, perspiration, or saliva, is uniformly encreased during

the external use of it. When it is internally given, the stools are more numerous, but this is not the case when mercury is externally applied, by friction, in which way it is generally most efficacious in relieving the disorder.

One of the properties of mercury, whether externally or internally applied to the human body, is to excite salivation, and to produce soreness of the mouth. The dread of these effects has deterred many practitioners from employing it in large quantities in children, lest the remedy should prove worse than the disease.

But it is impossible, in many cases, to reason analogically from adults to children, respecting the operation of medicines. Children not only bear, but require much larger doses of purgative medicines, in proportion to their age, than adults do; and the effect of them is very different. Opium, on the contrary, in very minute doses, is often productive of very violent effects in children, as has been observed in a former part of these papers; though it is taken by

adults in most cases with impunity. It is not at all known at present upon what these peculiarities depend, but there are few things better ascertained in practice.

In a disease of so serious a character*, in which the brain, a part so essential to life, is every hour exposed to encreasing mischief, and by which life itself is brought into the most imminent peril, great efforts must be immediately made, if any relief is to be expected. Every minute of delay aggravates the danger, and it is only by prompt and decisive measures that these evils can be, if at all, prevented.

At any age above one year, half a

* Under various circumstances the writer has prescribed mercury, in very large quantities, and in a great number of cases; and he never produced salivation, except in three instances, in any child under three years of age. But admitting that a profuse salivation should occur, there is no comparison between that and the danger of the disease: and even if salivation were an occurrence threatening the life of a child, it is to be remembered, that the remedy is applied to a disease, which, left to itself, always proves fatal.

drachm of unguentum hydrargyri forte, with five or more grains of camphor, may be rubbed in every six hours, on any broad surface of the body. This may be in two days increased to two scruples, or a drachm. The back is the best surface, from its breadth; next to that the thighs, especially the inside of them, as it is well known that a great number of absorbent vessels are situated there. The surface however is not so important as that the ointment be well rubbed in. If the operation be too fatiguing to the child every six hours, it may be used once in eight hours, in a larger dose. Every twenty-four hours it is useful to wash off the dried ointment, and rub the part again, when cleansed.

Of the advantage accruing from mercury, internally given, the writer is not able to give so decided an opinion, because he never employed it alone, independently of friction; but he has commonly used it conjointly with the external application of it. To children of a year old and upwards, one grain of calomel may be given every six, four, or even three hours, unless diarrhæa

should supervene. It most commonly brings on a discharge of green, mucous stools. When this happens, the internal use of mercury may be discontinued, or the frequency of the dose may be lessened.

The evidence of the favourable operation of mercury, will be the amelioration of some of the symptoms of the second stage of the disorder, as the squinting, the dilated pupil, the deafness, blindness, &c. The flattening of the tumor at the anterior fontanelle, is also a favourable symptom. The writer has seen cases of this disease, where, in the course of the recovery, not only the tumor disappeared, but the anterior fontanelle became concave, instead of being convex, as it had before been. It may be enquired how long the plan of using mercury should be persisted in ; it is quite impossible to give a precise answer to this question, much must be left to the judgment and discretion of the practitioner ; but it should always be remembered, that the disease has never been, (as far as is known), naturally cured, and that it must prove fatal, unless remedies make an impression upon it. In this

view of the subject, no precise time can be stated at which the means can, with propriety, be discontinued altogether.*

About sixteen years ago an instance occurred, in which a child recovered, after more than a year, and during the whole of which time, with little intermission, mercury had been used by friction. In the course of the treatment she was quite an idiot, but at the end of a twelvemonth she recovered her understanding by slow degrees. She remained for a long time more backward in all attainments than other children, but at length the powers of the mind returned.

Some irreparable injury however was in this instance probably done to the

* The quantity of unguent. hydrarg. fort. employed in the child referred to above, who was a patient of Mr. Jennett, exceeded two pounds.

A similar instance of the removal of water effused in the head, so as to raise the membrane of ossification, by mercurial friction, occurred in a child who was a patient of Mr. Lightfoot, of Oxford-street; since that period, a younger child of the same parents has died of the disease.

brain, either in the inflammatory, or second stage of the disease, as she has since been occasionally troubled with epileptic fits.

When the case has become chronic, if there should be no symptom indicating inflammation or fullness of the vessels of the brain, the diet may be changed, and any simple food, which will agree with the stomach, may be given to the child in moderate quantities.

Very sanguine expectations can never be formed of the recovery of patients from the second stage of the disease, but unpromising as the case is, every thing should be attempted, which may have the smallest chance of success.

No man of common feeling will be an idle spectator of the progress of a disease towards the destruction of a child without making some effort, even in the most deplorable state of things. Inaction, and despair combined, never yet did any good in human affairs. Unexpected changes some-

times occur in diseases, and it is difficult (not to say impossible) to circumscribe the powers of the constitution, when assisted by the judicious application of art.

CHAP. VII.

IDIOTISM, PARALYSIS AND EPILEPSY
IN CHILDREN.

IDIOTISM not unfrequently occurs as the sequel of inflammation of the brain in children, and becomes chronic.

It will be found by enquiry into the previous history of these unfortunate human creatures that they generally have become fatuitous after a supposed attack of common fever; but on a minute investigation of the symptoms it will clearly appear to have been inflammation of the brain. — Some unknown alterations in the configuration or relative position of the brain probably then took place, not sufficient to destroy life, but enough to weaken or annihilate the faculties of the mind, and these have become chronic.

For this state the writer knows no remedy.

PARALYSIS, whether of one or both extremities, or of other parts of the body, is one of the consequences of derangement of the brain from pressure, or from inflammation. — This is always a distressing, and generally an unpromising disorder, yet it often admits of alleviation, and sometimes of cure.

The application of blisters to the back, and keeping up a discharge from the surface by the use of unguentum lyttæ, or ceratum sabinæ is sometimes useful.

Issues, or setons applied near to the head — friction of the paralysed parts, frequently employed, and long continued — stimulating embrocations, and the use of electricity, have all afforded relief in cases of this kind.

When the child is old enough to be sensible of the disadvantage of having a limb paralysed, attempts at voluntary motion should be made. — They may not at first appear to be attended with any advantage, but by frequent repetition of them the ac-

tion of the muscles may be re-acquired. If all these measures are neglected, the child will become a cripple for the rest of life. — Some degree of hope and encouragement must be held out in order to induce the friends to persevere in employing means, which can only be expected to succeed by a long use of them.

EPILEPSY OR CHRONIC CONVULSION sometimes also remains after the cessation of inflammation of the brain in children, and the absorption (as far as can be judged) of the water which had been effused during the continuance of it.

When epilepsy arises from the previous existence of inflammation, or hydrocephalus, it may be sometimes, though it rarely is, perfectly removed. But the intervals of the paroxysms admit of being considerably increased by paying a very strict attention to diet, especially by enjoining abstinence from animal food, and too nourishing a regimen, as well as every description of fermented liquor — by sleeping with the head very much elevated — by early ris-

ing — by keeping the hair short, the head cold, and the rest of the body very warm — by avoiding all exposure of the body to cold, and maintaining a regular and free course of the bowels.

Setons and issues may also be employed with advantage in cases of epilepsy, as in in those of paralysis.

The daily use of a tepid bath, from 86 to 94 degrees of temperature, will, by diffusing the circulation, likewise be serviceable. At first it may be used for five minutes, and the time may afterwards be extended to an hour, if it should not relax the patient.

Epilepsy sometimes happens to children from violent irritation in the stomach and intestines, from accumulation of feculent sordes in them, (including also the presence of the round and tape worm).

This state will be more particularly considered in the next part of these Commentaries.

When cases occur, in which, without any symptom of direct pressure on the brain, there is occasional sickness, attended with flatulency, disturbed sleep, and other marks of a disordered digestion, either preceding, or following epileptic paroxysms, it will be right, especially in the former case, to evacuate the contents of the stomach by an emetic, consisting of a solution of sulphate of zinc in an aqueous infusion of ipecacuanha, and to repeat it in six, eight, or ten days, according to circumstances.*

When a child has attained the age of four years, an emetic may be given, consisting of six, eight, or ten grains of zinci sulphas, in half-an-ounce of an infusion of

* In the course of this year the writer has seen a case of epilepsy, in a boy, which yielded to the treatment recommended. Being of a full habit, blood was taken by cupping from the scalp, he was purged completely, and confined to a slender diet. Every week after the symptoms of plethora were subdued, he took an emetic of zinci sulphas, in an infusion of ipecacuanha. Under this plan the frequency of the fits was reduced, and he has now remained many months free from a paroxysm; though before the adoption of it, they returned every week, and sometimes much oftener.

fifteen grains of ipecacuanha in an ounce of hot water. The dose must however be liable to much variation according to the age of the patient, and the different degrees of irritability of the stomach; and no general rule can apply to every case.

Afterwards, if the stomach should exhibit marks of weakness, light bitter infusions may be given, assisted by some active stimulant, as ammonia or oleum cajaputi.

When there is a great prevalence of acid, from the imperfect digestion of vegetable food, soda, or liquor potassæ, or liquor potassæ subcarbonatis, may be combined with the bitter.

When the bowels are confined at the same time, magnesia may be advantageously employed. If, on the contrary, they are too much relaxed, which is seldom the case, cretaceous preparations may be resorted to.

Preparations of iron, as strengthening remedies, can seldom be used, on account of

the tendency which they have to promote the circulation in the head, by increasing the action of the heart in a greater degree than the strength of the digestive organs.

Preparations of zinc are not liable to the same objection: but in exhibiting them, great care should be taken to give them in such doses, as will not be apt constantly to excite nausea and vomiting. — In a child of two years old the range of dose of sulphate of zinc will vary from one to three grains — of white oxyd of zinc from one to six grains.

When the paroxysms of chronic convulsion are preceded by head-ache, sleepiness, and general torpor, accompanied by sighing or frequent yawning, particularly in robust subjects, blood should immediately be taken away, by opening the jugular vein — or by cupping from the scalp behind the ears, or from the nape of the neck. Purgatives of quick action should be often exhibited, and the diet should be reduced, and the head should be kept cold, and elevated.

In some instances epilepsy exists without any apparent affection of the head, or stomach.

These are however very rare, and by attention, the connection between it and some derangement of the functions of these parts may often be discovered, though it might not at first have been detected.

The writer has known two instances in which the sulphate of zinc was of great service in relieving chronic epilepsy of many years standing in adults. One of these was in a gentleman engaged in the profession of the law, a patient of Dr. Reynolds and Mr. Peter Howorth of Chancery-lane. He had generally some slight warnings of the approach of the paroxysms ; and he was ordered, instantly on perceiving them, to take half a drachm of sulphate of zinc in an infusion of ipecacuanha, as an emetic of quick action. By continuing this plan for some time he escaped the fits altogether.

The success of this case led to trying it

on a man who was a private tutor, and with whose employment the frequent occurrence of epileptic fits greatly interfered. He had very little notice of the approach of the fits, but as they occurred frequently, that is, about once in three weeks, he was directed to take a similar emetic once in a week — afterwards once in a fortnight, then every three weeks, and ultimately once in a month. For two years he altogether escaped the paroxysms, and considered himself well. — He now became impatient of the inconvenience of taking the emetics, and notwithstanding the solicitation of his friends, he discontinued them altogether. For some time he continued free from the disease, but at length was suddenly attacked by a paroxysm when walking a small distance from London, and died. — The result of these cases certainly leads to the probability of the advantage which may, in some instances, arise from using this remedy.

Immersion of the whole body in cold water has been tried as a remedy for cases of epilepsy. But experience does not ap-

pear to justify a recourse to it, and if the principles, which have been laid down in these Commentaries, are founded in truth, it must be injurious, and cannot in any way be useful. It will necessarily have the effect of repelling the blood from the surface to the interior of the body, and the vessels of the head must be rendered more full. Under these circumstances, if there should be any organic defect of the brain, or of the interior of the skull, upon which the epileptic paroxysm depends, an immediate attack may be expected, or at any rate a foundation will be laid for future paroxysms.

END OF THE FIRST PART.

POSTSCRIPT.

SINCE the whole of these Commentaries was printed, an apothecary, Mr. Burnham, has been indicted in the Court

of King's Bench, for having been the means of propagating the Small Pox, by ordering children whom he inoculated to be brought to his house through the public streets with the disease upon them. It was proved in evidence, that from one of these children several others caught the natural Small Pox, and six actually died. He was convicted by the unanimous decision of the Court, and sentenced to six months imprisonment in the King's Bench prison.

This decision should be generally known, because no person of any rank would be exempted from similar punishment for a similar offence.

Lord Boringdon's Bill becomes not less necessary on this account that the nuisance is punishable at common law, because the expence of prosecuting by indictment is considerable, and few disinterested persons would chuse to engage in it.

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